

CALL your DATA

Proceedings

**Brugge, KULeuven & imec
4 - 6 July 2018**

Composed by Jozef Colpaert, Ann Aerts, Frederik Cornillie

Proceedings, 2018
Cover: Nieuwe Media Dienst, University of Antwerp

ISBN 9789057285943

Alle rechten voorbehouden. Niets uit deze uitgave mag worden verveelvoudigd, opgeslagen in een geautomatiseerd gegevensbestand, of openbaar gemaakt, in enige vorm of op enige wijze, hetzij elektronisch, mechanisch, door fotokopieën, opnamen of op enige manier, zonder voorafgaandelijke schriftelijke toestemming van de uitgever.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the publisher.

Uitgave en verspreiding:

Universiteit Antwerpen
Prinsstraat 13
2000 Antwerpen
www.uantwerpen.be

Table of contents

TABLE OF CONTENTS	5
FOREWORD	9
KEYNOTE PRESENTATIONS	11
ALEX BOULTON	13
<i>Data-driven learning: data for learning, data from research</i>	13
ROSE LUCKIN	15
<i>AI and Language Learning: What does the future hold?</i>	15
SELECTED PLENARIES.....	17
MARIA BORTOLUZZI & IVANA MARENZI*	19
<i>Finding, sharing and re-using resources: metadata for teacher lifelong learning</i>	19
BEN DE MEESTER, SVEN LIEBER, ANASTASIA DIMOU, AND RUBEN VERBORGH	28
<i>Interoperable user tracking logs using linked data for improved learning analytics</i>	28
QING MA, LIXUN WANG.....	32
<i>Examining the role of learner generated information and content in wiki writing in an EAP context</i>	32
PAPER PRESENTATIONS.....	41
AHMED ABDULATEEF AL KHATEEB	43
<i>Developing continuous professional development (CPD) courses through telecollaboration integration across EFL teachers in Saudi Arabia</i>	43
RACHEL ALLAN	50
<i>Recycling the data: building and using a learner business English writing corpus</i>	50
ALBERTO ANDÚJAR, MARÍA DEL MAR HARO-SOLER*	58
<i>Telecollaboration through Web RTC: building bridges</i>	58
GHADA AWADA & HASSAN DIAB.....	65
<i>Effect of webquest media on learners' intercultural communication, debate and motivation</i>	65
GHADA AWADA, NUWAR MAWLAWI DIAB*, & MAR GUTIÉRREZ-COLÓN PLANA**	72
<i>Effect of Blog and Cultural Grouping on Learners' Perceptions of Intercultural Communication and Exploratory Writing</i>	72
IMAN BAKHODA & KARIM SHABANI	79
<i>Internalization process: capturing L2 learners' personal meaning-making via electronic presentation of a social context</i>	79
FİDEL ÇAKMAK & GÜLCAN ERÇETİN*	92
<i>Metacognitive awareness about listening in self-regulated L2 listening in a mobile environment</i>	92
CATHERINE CAWS, TRUDE HEIFT*, MARIE-JOSÉE HAMEL** & MAT SCHULZE***	101
<i>Revisiting language learning processes through learner data</i>	101
JULIE DAMRON, JENNIFER QUINLAN.....	109
<i>An exploratory study of student learning and progress in online, blended and face-to-face classes</i>	109
RICHARD HILL DAVIS, YU CHI WANG & CHAN-CHIA HSU *	118
<i>Starting small: looking at argumentation in the Feng Chia Learner Corpus</i>	118
DARJA FIŠER, MARIA ESKEVICH*	125
<i>The CLARIN infrastructure for open science</i>	125
MARK R. FREIERMUTH & THI HA DO*	129
<i>When communication prevails: a text-based chat project between universities in Vietnam and Japan ...</i>	129

KOLBRÚN FRIÐRIKSDÓTTIR & BIRNA ARNBJÖRNSDÓTTIR	135
<i>The resourceful CALL learner and effective blended learning</i>	135
ODETTE GABAUDAN & SUSANNA NOCCHI	138
<i>Information literacy for undergraduate students: integrating an OER into the foreign language curriculum</i>	138
ROBERT GODWIN-JONES.....	144
<i>Restructuring intermediate language instruction with open and student-curated materials</i>	144
NATHALY GONZALEZ-ACEVEDO	152
<i>Micro-analysis of preschoolers' interaction: analyzing multimodal audiovisual data</i>	152
MAKI HIROTANI, KAZUMI MATSUMOTO* & ATSUSHI FUKADA**	160
<i>A quantitative investigation of L2 learners' fluency using a learner corpus and fluency analysis tools</i>	160
YUN-HSUAN HUANG.....	168
<i>Accessible online advertisements as technical writing assistance: task design for ESP learning</i>	168
YU-WAN HUNG	178
<i>Fostering intercultural communicative competence through reflection upon telecollaboration data</i>	178
KRISTI JAUREGI.....	182
<i>Telecollaboration at secondary schools: challenges of open data</i>	182
İŞİL KACAR.....	188
<i>The impact of an e-mentoring project on EFL pre-service teachers' professional development: a case study on challenges and benefits of online written feedback provision practices in the Turkish context</i>	188
CHARLOTTE LARMUSEAU, FIEN DEPAEPE* & PIET DESMET**	194
<i>Computer Assisted Language Learning: the role of students' characteristics and self-directed learning on students' learning gain</i>	194
SUZI LEE, ROB KADEL, GÜLCAN ERÇETİN*, AMANDA MADDEN & YAKUT GAZI.....	201
<i>How can learner analytics data inform language MOOC design?</i>	201
JIA LI & LILLIAN MAK*	209
<i>Data documentation of an open, online collaboration tool: bridging the gaps of reading comprehension and expository writing skills for college students</i>	209
JIA LI & ZAHRA HARBI	215
<i>Analyzing open information: a case study of alignments between mobile assisted language learning (MALL) programs' functionality and language acquisition theories</i>	215
SHAN LI & ZHIHONG LU	220
<i>Enhancing EFL learners' communicative language ability in multimodal educational setting</i>	220
ANTHONY Y. H. LIAO, TOSH YAMAMOTO*, WEN-CHI VIVIAN WU, MEILUN SHIH** & YI TING ELSIE LEE.....	226
<i>Data solicitation for PBL in global teams in adaptive learning</i>	226
HSIN-YI LIEN.....	231
<i>Mining a comparable corpora for cross-language information retrieval</i>	231
I-TING DORIS LIN, YU-CHENG VINCENT CHOU, WEN-CHI VIVIAN WU & HSING CHIN LEE*	237
<i>The relationship between university students' behavior and their learning efficiency via idiom-based mobile application: a sequential analysis</i>	237
HONGYAN LIU.....	247
<i>Disfluency in Chinese English Learners' multimodal interpreting corpus</i>	247
ZHIHONG LU	261
<i>Classroom practice of online controlled writing in EFL learners' oral production by using an AWE Tool</i> ... 261	
BEATE LUO	264
<i>CALLing un-CALLable data</i>	264
WULIN MA, SHEN KUANG, SHANSHAN LIU & XIAOLI SU	268
<i>A study on college english instruction in a MOOC-based flipped classroom in China</i>	268
ALICE MEURICE, JULIE VAN DE VYVER, FANNY MEUNIER, CAROLE DELFORGE* & NATHALIE DELVIGNE**	279

<i>Open your data: digital literacies and language learning through the mobile app Actionbound</i>	279
FATEMEH NAMI	286
<i>Anytime anywhere language learning via asynchronous interactive content: challenges and implications for CALL course design</i>	286
NEASA NÍ CHIARÁIN & AILBHE NÍ CHASAIDE.....	292
<i>Recycling learner data for acquisition of targeted linguistic features: a custom-built iCALL platform</i>	292
ANNA NICOLAOU & ANA SEVILLA-PAVÓN	295
<i>Expanding a telecollaborative project through social entrepreneurship.....</i>	295
CARLOS ORDOÑANA, PASCUAL PÉREZ-PAREDES & PILAR AGUADO	303
<i>Language teachers' perceptions on the use of OER NLPTs.....</i>	303
JOHN SLOAN & JULIE CARSON-BERNDSEN	312
<i>Expressive Data: a learner corpus with emotion</i>	312
YAN TIAN.....	322
<i>Information of language deficiency obtained from learner translation error corpus</i>	322
PI-HUA TSAI	327
<i>Students as producers of content for computer-assisted pronunciation training: a case study in Taiwan</i>	327
CORNELIA TSCHICHOLD & MAHA ALZahrani.....	336
<i>Replication? Open data? Yes, please!.....</i>	336
CLAUDIO VANHEES, MATHEA SIMONS & VANESSA JOOSEN	341
<i>Novels as data: effects of multimedia hyperlinks in fiction on reading motivation and immersion in adolescent readers</i>	341
SERGE VERLINDE, JORDI HEEREN & NATHALIE NOUWEN.....	349
<i>CALL and learning analytics hand in hand: a case study</i>	349
JANE VINTHER & JØRGEN T. LAURIDSEN	356
<i>Getting to know the learner: motivational drive, digital literacy, and preferred mode of learning</i>	356
RODRIGO WILKENS, LEONARDO ZILIO & CÉDRICK FAIRON	364
<i>SW4ALL corpus: tagged and ready for searching</i>	364
JUAN YANG, XIAOFEI QI*, WEIWEI YAN & XIAOFANG KUANG.....	372
<i>Attention allocation and transferring pattern mining in Chinese students invoking English</i>	372
YU ZHU & LIUYAN YANG	377
<i>Exploring the co-occurrence patterns of linguistic features in academic writing in Chinese through a multi-dimensional analysis.....</i>	377
LEONARDO ZILIO, RODRIGO WILKENS & CÉDRICK FAIRON	381
<i>Analyzing grammatical structures in texts written by language learners</i>	381

Foreword

It is my pleasure to welcome you to the XIXth International CALL Research Conference at the Katholieke Universiteit Leuven Campus Brugge. More than 100 participants from more than 20 countries have submitted papers which all focus on the conference theme "CALL your DATA".

The International CALL Research conferences focus on the role of technology in the language-learning and teaching process. The XIXth edition will explore the issue of *Open Data, Information and Content*. We define 'Open' as incorporating the qualities of being accessible, exchangeable, sustainable, reusable and useful.

Every CALL practitioner and researcher is confronted on a daily basis with the challenges and issues associated with the use of Data, sometimes massive amounts of it, where Data can become Information and/or Content depending on our goals.

We distinguish four types of **Information**:

- Information about the Learner: information provided by the learner, the teacher, the school, the parents, e-portfolios, social networks (e.g. through data scraping) and smartphones (e.g. by providing the learner's geotemporal location) This information can be useful and even needed for the personalization and contextualization of the learning process.
- Information about the Learning Process or Learning Analytics: data gathered by a system or electronic learning environment with a view (a) to assessing and supporting the learner, (b) to analyzing the learning process, (c) to improving the learning environment and (d) to predicting learner behavior (in the case of Big Data or educational data-mining on a large scale).
- Pedagogical metadata: sets of data that may facilitate the reusability and discoverability of digital learning resources, with a view to supporting the learner (hyperlink glosses, captions, just-in-time information, procedural information ...) or the teacher (tags, readability indexes, CEFR levels, pedagogical instructions...). These metadata are mostly integrated in content for learning or teaching.
- Research Data: with the recent Open Access policies comes also the tendency to facilitate access to the datasets with any publication.

We distinguish four types of **Content**:

- Published materials: textbooks, courseware, MOOCs;
- Self-made (or co-authored with colleagues or students) materials: OERS, LMS-embedded exercises, sound files, subtitles, captions, corpora, knowledge clips, fan fiction, textual or audiovisual content produced in online communities of practice ...;
- Authentic Documents found on the Web, especially the Semantic Web, or level-adapted materials (e.g., easy readers);
- Content found in Virtual Worlds, Serious Gaming, Ambient Intelligence, Augmented Reality and The Internet of Things.

Both Information and Content are not given high priority as Open Data in the CALL field. This is why we are dedicating a special conference to the theme.

I wish to thank my associate editors, the members of our editorial board, the local organizers Piet Desmet, Frederik Cornillie and Ine Windey, our keynote speakers Rose Luckin and Alex Boulton, conference manager Ann Aerts, and all the participants.

The International CALL Research Conferences were initiated by Keith Cameron, the founding editor of *Computer Assisted Language Learning*, at Exeter University. In 2002, I was asked to take over both the editorship of the journal and the organization of the conferences. Since then, the following have been organized:

- Xth edition: "CALL Professionals and the future of CALL Research" (Antwerp, 2002)
- XIth edition: "CALL and Research Methodologies" (Antwerp, 2004)
- XIIth edition: "How are we Doing? CALL and Monitoring the Learner" (Antwerp, 2006)
- XIIIth edition: "Practice-Based & Practice-Oriented CALL Research" (Antwerp, 2008)
- XIVth edition: "Motivation and Beyond" (Antwerp, 2010)
- XVth edition: "The Medium Matters" (Taichung, 2012)
- XVIth edition: "Research Challenges in CALL" (Antwerp, 2014)
- XVIIth edition: "Task design and CALL" (Tarragona, 2015)
- XVIIIth edition: "CALL in Context" (Berkeley, 2017)

It is our intention to make the CALL conferences annual instead of biennial, and to change the continent every year. Should you be interested in hosting one of our conferences, just let us know.

Jozef Colpaert
Editor CALL Journal
Organizer International CALL Research Conferences

Keynote presentations

Alex Boulton

Université de Lorraine, Nancy, France

alex.boulton@atilf.fr

Data-driven learning: data for learning, data from research

Bio data

Alex Boulton is Professor of English and Applied Linguistics at the University of Lorraine and director of the research group "Analyse et Traitement Informatique de la Langue Française" (ATILF: UMR 7118, CNRS & Université de Lorraine). Particular research interests centre on corpus linguistics and potential uses for 'ordinary' teachers and learners (aka data-driven learning). He has published and edited books and papers in these fields over the years, and is on various boards and committees: AFLA (Association Française de Linguistique Appliquée; vice-president), EUROCALL (European Association for Computer Assisted Language Learning) and TaLC (Teaching and Language Corpora); as well as a number of scientific journals: ReCALL (editor), Alsic, ASp, CALL-EJ, the EUROCALL Review, IJCALLT, JALT-CALL Journal, Language Learning & Technology, and Al-Lisaniyyat. He has collaborated with the Computer Assisted Language Learning journal as a reviewer and contributor to joint editorial panels at major CALL conferences.

Abstract

Language is a tremendously complex object, and learning a second language to an effective level of competence represents a daunting prospect. Though children acquire a first language as a matter of routine through exposure and meaningful interaction, something else is clearly required for later learning. The traditional response has been to simplify things as much as possible through expert mediation: language is carefully divided into bite-sized pieces to be delivered by teachers and coursebooks through clear examples in a predetermined order, with cognitively demanding explanations, rote learning and mechanical rehearsal. The subsequent loss of meaningful communication has been at least partially addressed in a number of methods and approaches, including the use of authentic language samples. But the teacher is still in many cases the mediator, selecting the materials and thus the exposure: the learner is not to be trusted with data 'in the wild'. New technologies have seen a drastic change in the past 20 years or so, as learners no longer have to rely on teachers, selected documents or resource centres to encounter a target language. Though some teachers might rue a loss of control, massively increased exposure is not only possible but, in many cases, a reality in informal online learning.

The question remains though of whether and how extensive contact with a language might be helped by pedagogical intervention. In other words, in the knowledge pyramid model, how can learners be helped to convert the language data they are exposed to into information and subsequently knowledge? Among the various possibilities, data-driven learning or DDL (Johns, 1990) draws inspiration from corpus linguistics in harnessing the power of computers to analyse large quantities of text in a fraction of a second. Not only can a computer analyse far more text than would be possible via regular reading, it also provides a substantially different presentation of frequency, distribution, co-occurrences and patterns via numerous contextualised uses. Johns' (1990, p. 30) stated aim was precisely "to cut out the middleman [i.e. the teacher or coursebook] as far as possible and to give the learner direct access to the data."

This paper introduces the concepts of DDL, the theoretical foundations and research findings to date, along with examples of pedagogical applications, before focusing in on the specific question of the data to be used. Clearly what is important for pedagogical purposes may be different from the criteria used by corpus linguists: for the learner, any set of data, from a single text to the estimated 45 billion internet pages indexed by Google, may be useful in some cases. Drawing on a recent meta-analysis of DDL (Boulton & Cobb, 2017), two main themes emerge of relevance to this conference. First, the type of research data presented in the studies themselves: not just the results, but also the information about the learners, context, tasks, instruments and analyses. Gaps in the coding sheet reveal substantial room for improved reporting practices. Second, the different types of 'corpora' used in published studies: these are outlined, with an appraisal of their relative usefulness for different learners in different contexts and how they may be used. In conclusion, it is argued that if DDL is less obviously mainstream than advocates might have hoped, we need to bring DDL to the learners rather than the other way round, using appropriate tools and techniques for different needs and learner profiles, and ensuring the data are relevant and sharable.

References

- Boulton, A., & Cobb, T. (2017). Corpus use in language learning: A meta-analysis. *Language Learning*, 67(2), p. 348-393. DOI 10.1111/lang.12224
- Johns, T. (1990). From printout to handout: Grammar and vocabulary teaching in the context of data-driven learning. *CALL Austria*, 10, p. 14-34..

Rose Luckin

UCL Knowledge Lab, London, UK

r.luckin@ucl.ac.uk

AI and Language Learning: What does the future hold?

Bio data

Prof Rose Luckin has been developing and writing about the Learning Sciences, Educational technology and Artificial Intelligence in Education (AIEd) for over 20 years. Her research explores how to increase participation by teachers and learners in the design and use of technologies. In addition to over 50 peer-reviewed articles and two edited volumes, Prof. Luckin is the author of Re-Designing Learning Contexts (Routledge, 2010), and lead author of the influential Decoding Learning report (Nesta, 2012). Rose is a member of the Welsh Assembly's Successful Digital Futures group and was previously a member of the board of BECTA (the British Educational Communications and Technology Agency) and founder and chair of their Research Advisory Group. Rose is a member of the EPSRC college of reviewers and has advised the research councils of various countries on the design and use of educational technologies. Her research applies participatory methods to the development and evaluation of technology for learning. This work is interdisciplinary and encompasses education, psychology, artificial intelligence and HCI.

Abstract

Most people in countries where modern technology is widely used will be interacting with Artificial Intelligence (AI) through its many practical applications in computers that have visual capabilities, that can learn, solve problems, make plans, and understand and produce natural language, both spoken and written. These AI applications are used in areas such as medical diagnosis, language translation, face recognition, autonomous vehicle design and robotics.

AI is also already being applied to educational settings. For example, Alelo has been developing culture and language learning products since 2005 and specialises in experiential digital learning driven by virtual role play simulations powered by AI. Carnegie Learning produce the software that can support students with their Spanish studies. In order to provide individually tailored support for each learner the software must continually assess each student's progress. The assessment process is underpinned by an AI-enabled computer model of the mental processes that produce successful and near-successful student performance.

These examples merely scratch the surface of what is possible with AI. In this presentation, I will explore how AI is relevant to CALL and what AI can contribute to teaching and learning to help students and educators progress their understanding and knowledge more effectively.

Selected plenaries

Maria Bortoluzzi & Ivana Marenzi*

University of Udine, Udine, Italy

*L3S Research Center, Hannover, Germany

maria.bortoluzzi@uniud.it - marenzi@l3s.de

Finding, sharing and re-using resources: metadata for teacher lifelong learning

Bio data



Maria Bortoluzzi is Associate Professor of English language at the University of Udine (Italy). Her research interests are in the areas of critical discourse studies and teacher education. Her latest research work deals with the analysis of online communities and ICT multiliteracy for teacher education.



Ivana Marenzi, PhD (F), is senior researcher at the L3S Research Center of the Leibniz University of Hannover, Germany. Throughout her career she has specialised in the relationship between technology and communication. Her main area of research in Technology Enhanced Learning includes the support of collaborative and lifelong learning.

Abstract

The ongoing study looks at the online behaviours of language teachers in the open access professional online environment YELL / TELL. The present paper focuses on how language teachers (from different backgrounds and experiences) carry out web searches and collaboratively tag and comment online open access, Open Educational Resources and user-generated resources in order to find and re-find them and make them more easily accessible to other colleagues. This allows teachers to exchange professional knowledge and practice giving colleagues suggestions on how resources can be used, re-contextualised, reused and become relevant for different teaching and learning contexts. The qualitative and quantitative analysis of their behaviour allowed researchers to create a new search interface to facilitate sharing resources and practices, personalising their digital environment while learning in the process.

Conference paper

Introduction

Our study focuses on how language teachers carry out web searches and collaboratively tag and comment online open access and user-generated resources in order to make them more easily accessible and exchangeable; this allows teachers to exchange professional knowledge and practice giving colleagues suggestions on how resources can be re-contextualised, reused and thus become more relevant for different teaching and

learning contexts.

YELL/TELL (*Young English Language Learners / Teen English Language Learners*) is a professional online community open to student teachers, language teachers and language teacher educators. The wider project has the aim to support multiliteracies awareness and competence for language teachers (pre-service, in-service and lifelong learning) (Marenzi, 2014; Cope and Kalantzis, 2015). One of the aims of the present project is to improve the web searching processes for language teachers and transform them into effective learning and professional processes (Marchionini, 2006; Marenzi and Nejdl, 2012).

Initial investigations were based on how experienced language teachers search online for Open Educational Resources (OERs)¹ and authentic materials² (Marenzi, Bortoluzzi, Kalyani, 2016; Bortoluzzi and Marenzi, 2017). The results of those studies generated the next phases of the project focused on strategies for facilitating searching, retrieving and sharing resources and practices within a knowledge-process development and a new search and tagging interface (Hwang, Marenzi, Bortoluzzi, Ronchetti, 2017).

The present paper is based on the ongoing phase of gathering qualitative and quantitative data on how language teachers are using the new interface which should facilitate searching, re-finding and sharing. More specifically, we focus on the following questions:

What are the web searching variables which are used by language teachers from diverse professional contexts to retrieve, re-find, share, render accessible and suitable for different teaching contexts Open Educational Resources (both found online and user-generated) and authentic materials for learning?

In multiliteracies and digital literacy education for teachers, how can we support collaborative searching and annotation of resources in order to facilitate re-finding, sharing and re-using in different contexts and promote teacher personalization of professional learning?

First the paper presents the context of the YELL/TELL professional online community; then it briefly discusses the challenges posed by the enormous amount and variety of OERs accessible online; it briefly outlines the search strategies used by novice and experienced language teachers when they were using the previous interface, and then it discusses the choices made to implement and pilot the new search interface. Provisional conclusions point towards flexible and adaptable guidelines for searching and sharing resources and practices among language teachers; however further data gathering and analysis are needed in order to offer solutions grounded on quantitative as well as qualitative data.

The context of the study

The YELL/TELL professional online community is supported by LearnWeb, a learning and competence development environment which allows users to share and collaboratively work on resources collected from the web or user-generated (Marenzi and Zerr, 2012). LearnWeb provides users with a search interface for resource discovery and sharing across various Web services such as YouTube, Flickr, and Slideshare, including LearnWeb itself, and can offer a Personal Digital Learning Space. In order to support collaborative searching, LearnWeb provides automatic and manual resource annotation. Resources in LearnWeb can be bookmarked, tagged, commented, and discussed by all users who join the special interest groups of the community. Hence, the different LearnWeb communities (one of them is YELL/TELL, the focus of this paper) can collaboratively

¹ Iiyoshi and Kumar M.S.V, 2008; UNESCO, 2002; Beaven, 2013, 2015.

² Guariento and Morley, 2001.

identify the best learning resources for specific learning domains and interest groups (for a discussion of the LearnWeb affordances, see Marenzi, 2014; Marenzi and Nejdl, 2012; Marenzi and Zerr, 2012).

LearnWeb has been used as a collaborative platform to support the activities of various teaching and learning scenarios, including the YELL/TELL community for teacher professional development. The YELL/TELL community aims at 1. raising language teacher awareness about resources and practices, and promoting reflection on teaching languages to young, teen and university learners; 2. promoting teacher multiliteracies competence; 3. promoting collaboration and sharing of practices among teachers (Bortoluzzi and Marenzi, 2014).

The key aspect of the LearnWeb platform, adapted by its developers for the needs of the YELL/TELL community, is offering a virtual space for supporting a continuous process of lifelong learning shared by professionals and language educators with diversified backgrounds. The flexibility of the platform allows the community to re-contextualise resources for professional use and exploit the environment to share and exchange both resources and the ideas for adapting them in the teacher's own working context. By sharing resources from one group to another, learning materials can be re-contextualised to promote collaboration across education levels and interest groups.

Due to the growing amount of materials and metadata collected by the YELL/TELL users and the ever-growing number of online resources found on the web and posted in the various groups, teachers noticed that it was becoming more and more difficult to find, re-find and share resources on the platform with the default LearnWeb interface. During professional courses for teachers, participants expressed the need for a different way of organizing resources to facilitate re-finding them at a later stage and sharing them more efficiently with colleagues.

Previous research phases

In order to improve on the affordances and use of the LearnWeb platform adapted for the YELL/TELL community of language teachers and educators, in 2014 we carried out a small-scale study to look at how expert teachers select, share, use and adapt resources for their professional practice. Six experienced teachers were first interviewed about how they carried out their web searches for educational purposes, and then they were recorded (with screen capture) during searching tasks carried out with think-aloud protocols (Bortoluzzi and Marenzi, 2017). The research questions addressed were: How do (language) teachers search for resources on the Web? What do they actually look for (datasets and categories)? What kind of strategies do they adopt for searching and for using, re-using and adapting resources?

For our study, we chose five expert and successful language teachers selected on the basis of a questionnaire: we were looking for teachers who had a complex and reflective point of view towards teaching and learning (Edge, 2011), and a positive attitude towards digital technology for language teaching purposes (Jones and Hafner, 2012; Dudeney, Hockley and Pegrum, 2014). We additionally invited a university lecturer expert in digital technology for education to carry out the web searching activities; her presence would provide a point of view of 'expert user' of educational technology different from language teachers.

On the basis of our research questions, a series of data-driven categories were identified in the data (the transcripts of the interviews and think-aloud protocols):

1. *Search terms*: How do teachers search for content/topic? What keywords/key expressions do they use? E.g.: human rights, writing activities, Mondrian, etc.
2. *Multimodal actions*: What are the actions teachers identify? E.g.: searching, choosing, finding, using, adapting, re-contextualising, creating, linking, etc.

3. *Multimodal function objects*: What are the digital objects mentioned by the teachers when searching that allow them to act on the digital environment? E.g. download button, overhead toolbar, link, etc.

4. *Multimodal text-types*: What type of multimodal texts do teachers search for? How do they refer to the kind of multimodal texts they are searching for?

5. *Context and purpose*: How do teachers refer to the context of use of the website/resource they are looking for? How do teachers refer to the purpose for their search?

6. *Website credibility, reputation, trustworthiness*: How teachers refer to these aspects?

A detailed presentation and discussion of the data analysis is provided in Bortoluzzi e Marenzi (2017); here we shall only summarise some of the results which are relevant for the present paper.

1. Multimodal text-types searched by the teachers are in great variety and often one typology includes several: for instance, a pdf file might include written text, a photo, an audio-file link and a video link. Our expectations of the relevance of OERs for teaching were only partly met, since our data clearly showed the relevance of online resources not purposefully created for teaching; expert teachers tend to look for 'authentic' resources (see Guariento and Morley, 2001 for a problematization of the label 'authentic').

2. Search terms span across any topic (both OERs and resources not originally intended for educational purpose) and they are not a suitable predicting variable for improving on searchability. It is rather the strategies used for searching that pointed us towards interesting trends useful for teacher education. The most productive strategies we found were two: 'personalization' and 'trustworthiness'.

1. *Personalization*: given the excess of online resources, experienced teachers tend to rely on themselves as a network of professional knowledge (colleagues they meet offline in school and/or online; see Vuorikari et al., 2012 and Vuorikari and Brecko, 2014) to assess, recommend and rely on websites or resources which are previously checked and approved of by trusted peers. The result is a complex network of collective intelligence and professional competences that often results in personal or school networks and blogs (Facebook groups, personal blogs, Whatsapp groups, etc.).
2. *Trustworthiness*: teachers tend to rely on credible, well-known, institutional websites and portals or, as an overlapping trend, online resources recommended by and valuable for other trusted colleagues; most often recommended online resources belong to well-known, official or educational institutions.

Strategies related to personalization and trustworthiness tend to intersect and be mutually reinforced. Also, these two main strategies together promote a loop of digital competences encompassing the personal and the institutional contexts, the private and the public sphere of the teaching profession whereby one level feeds into the other seamlessly. The private sphere (a personal blog, Facebook group, for instance) merges with the public sphere where colleagues can draw resources and ideas and can contribute to them.

In summary, the voices of the expert teachers we interviewed, shifted the balance towards processes, rather than on 'learning objects' and resources. Their focus was on multiliteracies practices and strategies as processes of professional individual and collective improvement.

In Autumn 2015 another phase of the research took place thanks to data gathered during an in-service teacher training workshop organised for 16 Italian experienced teachers of primary and lower secondary schools. They were either English L2 teachers or class teachers who had taught or would be teaching English as L2 and had very diverse digital skills (some beginners, the majority at rather low level of digital

competence and two competent ones). The general aim of the workshop was to reflect on online collaboration for teaching and plurilingual education. The research goal was to collect information about teachers' online practices (such as searching, selecting, annotating and customising online resources) and improve on the system interface in support of teaching scenarios (Marenzi, Bortoluzzi, Kalyani, 2016).

We analysed the data quantitatively (log analysis) and qualitatively (through ethnmethodological observation and evidence from fora and questionnaires). Here we shall only report the results about the teachers' search behaviour. Due to the generally low digital competence of the participants, the 'hard evidence' of logs showed unsatisfactory results of repetitive or just started and abandoned online searches; also teachers uploaded new resources onto the platform mainly from their desktop because they felt more confident with sharing familiar resources; some of them uploaded many times the same resource or keyed in queries with errors. However, the 'soft evidence' and ethnographic observation yielded a very different reality: teachers were involved, motivated, reflective and creative; they explored online resources, and critically discussed (both offline and through fora) what and how they found for teaching or professional improvement; they provided useful remarks and suggestions (online and offline) for the improvement of the platform, such as the need for pre-designed categorization of resources, improved group design, and system documentation.

Both soft and hard data analysis clearly showed that teachers did not find helpful the original system of tagging and commenting because it was too generic and vague. The original system was just a prompt to 'Tag' and 'Comment' with no further specification. Users tended either not to tag and comment or to write evaluative expressions that did not help themselves and other users to find and assess the resource: 'beautiful', 'nice', 'great' are examples of vague tagging that does not provide helpful metadata to other teachers. However, it was clear from their online and offline behaviour that teachers highly valued the knowledge, experience and teaching ideas of trusted colleagues.

The results of the data analysis brought about a revised model of how to tag and annotate resources collaboratively in order to sort, find and re-find them more easily. In 2016 the resulting provisional tagging system, which was professionally relevant and based on teacher use, was sent to other 20 experienced language teachers. Their feedback was included into the model that, in 2017, was eventually transformed into the present tagging and metadata system by the computing developers (Hwang, Marenzi, Bortoluzzi and Ronchetti, 2017).

The new search interface and the latest research phase

The major change in eliciting and using user-generated and automatically-generated metadata shifted from a system where tagging and commenting on educational resources was not guided, to an interface which is based on search variables and filters that are similar to those language teachers use and have in mind when searching for language teaching resources. The present new search interface includes two main categories of metadata:

1. *Metadata automatically generated by the system* (but that can be changed by the users). These metadata refer to Author (of the resource), Type of content (video, image, game, etc.), Language (English, Italian, etc.), Group (the Special Interest Group it belongs to), date (of uploading). These automatically-created metadata can also be changed by the user if they are not accurate enough.
2. *Metadata prompted by the system through menus, and selected or written by the users*. This second type of metadata focuses on language education variables. They include ontologies at three levels of specificity (from more general to more specific interest areas/topics), language level (of the resource), potential target learner(s) and purpose(s) of use (see Fig. 1). All these categories allow multiple choices and, apart from language levels (based on the

Common European Framework of Reference), the categories can be expanded with labels added by the users.

Add Your Own Categorization

Please, add your own categorization: this will help you and other users find resources easily and efficiently. Select the most appropriate tags or type them; then, click on the "SAVE" button.

Resource Title: DysTEFL - edition selection page

Category:

Level 1: Select Category Level 1 Level 2: Select Category Level 2 Level 3: (Choose or type a new one)

Language Level: Target Learner:

Purpose of Use:

Save Cancel

Fig. 1 Tagging categorization selected by users

There are two main options to search for resources using metadata: keyword search (also using the different categories available for each resource) and category navigation search, namely the three-level topic categorization visualized as a tree with clickable nodes to retrieve the resources belonging to that node (see Fig. 2).

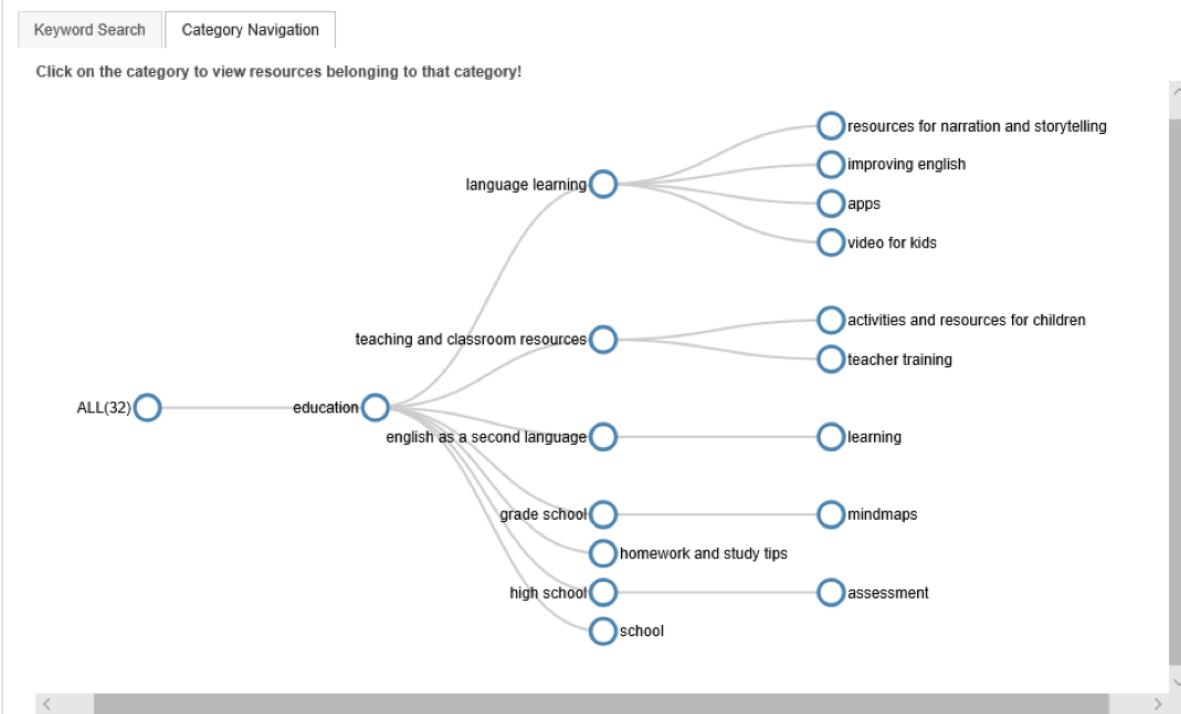


Fig. 2 Category navigation for the group 'Learning Apps'

Metadata can be easily visualized for each resource in a way that allows teachers to see immediately the variety of other teachers' choices and uses for the resource (Fig. 3)

Title: Videos for Kids -- National Geographic Kids
Category: education/teaching and classroom resources/clil
Contains: Video, Image, Game
Language: English **Level (stats):** A1[2] B2[3] A2[4]
 B1[7]
Target learner (stats): ● Pre-school[2] ● Teachers[2] ●
 Young learners[7] ● Teens[4]
Purpose of use (stats): ● Reading[1] ● Speaking[1] ●
 Listening[5]

cross-curricular resources / CLIL **class activities**
lesson plans **story-telling**

Fig 3 Visualisation of educational resources

The new search interface is in use from November 2017 and was tested through a pilot: post-graduate university language students and experienced teachers from a variety of schools (from secondary to primary) carried out search tasks that could help us test the system. Some initial problems were identified and adjusted, and now the search system is currently in use. Logs and qualitative evaluation are being gathered from March 2018 onwards to assess how it facilitates (or otherwise) retrieval, sharing, re-finding and re-using resources through one's own and other teachers' tagging.

Concluding remarks and further developments

The search interface of YELL/TELL required a solution rather different from wide-ranging communities such as KlassCement (which caters for all subjects) and LORO (professional resources in a variety of languages developed and shared by the Open University; Beaven, 2013; 2015). YELL/TELL is a community that was developed to bridge across boundaries of different school levels (from primary to higher education) and different professional experience (student teachers and experienced teachers in a lifelong learning perspective). The new search interface that was developed stemmed from the requirements, needs and suggestions of the community participants to enhance web searching, but also re-finding resources, and sharing among colleagues how resources can be used for different contexts and groups of students. This includes resources that are not necessarily originally created for teaching languages (Guariento and Morley, 2001), but have educational potential which can be stretched out in ways the authors of the resource cannot often envisage (Marchionini, 2006). Therefore, searching for resources becomes for experienced and student teachers a process of learning from other language teachers (through tags and comments), sharing educational creativity and discovering new ways of using familiar resources.

The next step of this study will be gathering both hard data (from the logs) and soft data (from questionnaires and interviews with users) about the potential and the problematic aspects of the search interface in YELL/TELL. The results will not only assess the uses of the interface itself and offer suggestions for improvement, but also they will indicate to what extent this search system can be used in other online communities and adapted for communities of practice other than language teachers.

References

Beaven T.: (2013). Use and Reuse of OER: professional conversations with language teachers. *Journal of e-Learning and Knowledge Society*, 9(1), 59-71. Retrieved from http://www.je-lks.org/ojs/index.php/Je-LKS_EN/article/view/802 (24.3.2018).

Beaven T.: (2015). OER (re)use and language teachers' tacit professional knowledge: Three vignettes. In Borthwick K., Corradini E. and Dickens A. (Eds.), 10 years of the

LLAS elearning symposium: Case studies in good practice (pp. 77-88). Dublin: Research-publishing.net.

Bortoluzzi M. & Marenzi I.: (2014). YELLing for collaborative learning in teacher education: users' voices in the social platform LearnWeb2.0. International Journal of Social Media and Interactive Learning Environments (IJSMILE), 2 (82), 182-198.

Bortoluzzi M. & Marenzi I.: (2017). Web searches for learning. How language teachers search for online resources. Lingue e Linguaggi, 23, 21-36.

Cope B. & Kalantzis M. (eds): (2015). A Pedagogy of Multiliteracies: Learning By Design. London: Palgrave.

Dudeney G., Hockley N. & Pegrum M.: (2013). Digital Literacies. Research and Resources in language teaching. London: Routledge.

Edge J.: (2011). The Reflexive Teacher Educator in TESOL. Roots and Wings. London: Routledge.

Hwang H. K., Marenzi I., Bortoluzzi M. & Ronchetti M.: (2017). The Role of Context for User Annotations in Searching Shared Materials. In Xie H., Popescu E., Hancke G. & Fernández Manjón, B. (Eds.). Advances in Web-Based Learning – ICWL 2017. 16th International Conference on Web-based Learning, Cape Town, South Africa, September 20-22, 2017, Proceedings (pp. 91-100). Springer Lecture Notes in Computer Science (LNCS).

Guariento W. & Morley J.: (2001). Text and task authenticity in the EFL classroom. ETL Journal, 55 (4), 347-353.

Iiyoshi T. & Kumar M.S.V. (Eds): (2008). Opening up education: the collective advancement of education through open technology, open content, and open knowledge. Cambridge: The MIT Press. Retrieved from: https://mitpress.mit.edu/sites/default/files/titles/content/9780262515016_Open_Access_Edition.pdf (24.3.2018).

Jones R. H. & Hafner C. A.: (2012). Understanding digital literacies. A practical introduction. London: Routledge.

Marchionini G.: (2006). Exploratory search: from finding to understanding. Commun. ACM, 49(4), 41-46.

Marenzi, I.: (2014). Multiliteracies and e-learning2.0. Foreign language pedagogy content- and learner-oriented. Frankfurt am Main: Peter Lang.

Marenzi I., Bortoluzzi M. & Kalyani R.: (2016). YELL/TELL: online community platform for teacher professional development. In Papadima-Sophocleous S., Bradley L., and Thouësny S. (Eds.), CALL communities and culture – short papers from EUROCALL 2016 (pp. 307-312). Dublin: Research-publishing.net. Retrieved from: <https://research-publishing.net/content.php?doi=10.14705/rpnet.2016.EUROCALL2016.9781908416445> (24.3.2018).

Marenzi I. & Nejdl W.: (2012). I search therefore I learn. Supporting active and collaborative learning in language teaching. In Okada A., Connolly T. & Scott P. (Eds.), Collaborative learning 2.0: Open Educational Resources Hershey (pp.103-125). PA, IGI Global, Information Science Reference.

Marenzi I. & Zerr S.: (2012). Multiliteracies and active learning in CLIL: the development of LearnWeb2.0. *IEEE Transactions on Learning Technologies*, 5(4), 336-48.

UNESCO: (2002). What are Open Educational Resources (OERs)? Retrieved from: <http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/what-are-open-educational-resources-oers/> (24.3.2018).

Vuorikari R. & Brecko B.: (2014). How could teachers' professional collaboration in teacher networks be better studied as part of digital competence? In Viteli J. & Leikomaa M. (Eds.). *Proceedings of EdMedia: World Conference on Educational Media and Technology* (pp. 1821-1826), Association for the Advancement of Computing in Education (AACE).

Vuorikari R. et al.: (2012). Teacher networks. Today's and Tomorrow's Challenges and Opportunities for the Teaching Profession. Brussels: European Schoolnet. Retrieved from: <http://publications.jrc.ec.europa.eu/repository/handle/JRC75795> (24.3.2018).

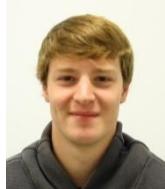
Ben De Meester, Sven Lieber, Anastasia Dimou, and Ruben Verborgh

Ghent University, Ghent, Belgium

{firstname.lastname}@ugent.be

Interoperable user tracking logs using linked data for improved learning analytics

Bio data



Ben De Meester joined the IDlab research group of Ghent University – imec, Belgium as a full-time researcher immediately after he graduated from Ghent University in 2013 as a Master of Computer Science. His research interests comprise digital publishing and education, and declarative solutions for generation and transformation of Linked Data.



Sven Lieber received his B.Eng. in Communication and Software Engineering from Albstadt-Sigmaringen University of Applied Sciences, Germany (2013) and his M.Sc. degree in Computer Science from the University of Freiburg, Germany (2016). After graduation he joined IDLab of Ghent University – imec, Belgium, where he currently pursues his PhD. His research interests cover Provenance, Privacy, and Semantic Web.



Anastasia Dimou is a post-doctoral researcher at the IDLab research group of imec/UGent, Ghent, Belgium since February 2013. Research interests include Linked Data generation and publication, data quality and integration, knowledge representation and management. Her research activities led to the development of the RML tool chain, and she currently conducts research on automated Linked Data generation, validation and assessment, and Knowledge integration from Big stream data.



Ruben Verborgh is a professor of Semantic Web technology at IDLab, a group of Ghent University/imec, and a research affiliate at the Decentralized Information Group of CSAIL at MIT. His research interests comprise the Web, decentralization, hypermedia clients, Web APIs, Linked Data, and much more.

Abstract

Learning analytics can provide adaptive learning and performance support by analyzing user tracking logs. However, data-driven learning is usually confined to a specific context (e.g., learning English within one application), and thus not interoperable across systems or domains. In this paper, we investigate ways to improve integration of data across applications and educational domains, by means of Linked Data, using existing standards such as the Experience API. Using JSON-LD, existing Learning Record Store tools can be used to store the tracking logs, which are then interpreted and aligned as Linked Data. We have applied the solution in an initial data capture resulting in more than two million statements spanning two different applications. This way, we aim to enrich adaptive learning and performance support across contexts.

Conference paper

Computer Assisted Language Learning (CALL) and other computer assisted learning systems enable automated tracking of *Information about the Learning Process* (i.e., learning analytics). Integration of learning analytics with *Information about the Learner* enriches data-driven learning. Learning analytics using user behavior and user's background variables can improve adaptive computer assisted learning systems. The initial skill level of a new user can be predicted based on its background variables (e.g., age, location), and this level can be adjusted based on the user's behavior (e.g., human-computer interactions) throughout the learning trajectory. This improves learner engagement and lowers dropouts.

However, user tracking data usually resides in a closed context, i.e., within a specific application and confined to a single educational domain (e.g., learning English). By opening this data, i.e., integrating it across contexts, more learning analytics are available, and data-driven learning can be enriched.

Within the LEAPS project (LEarning analytics for AdaPtive Support, 2016-2018)³, we tackle the challenge of combining learning analytics across contexts and domains, and investigate ways to improve interoperability between computer assisted learning systems. This way, we aim to enrich adaptive learning systems. For example, within LEAPS, a first application provides auditory discrimination assessments, and a second provides relevant suggestions in writing exercises. The applications adapt the ability level based on the tracked behavior and the background variables of the user, based on the Elo-rating algorithm (Elo, 2008). By combining learning analytics across these applications, both adaptive algorithms can be improved even further. For example, when the first application tracks that a user needs improvement for a specific auditory discrimination activity (e.g., distinguishing between "i" and "a"), related suggestions can be enabled within the second educational application. Therefore, interoperable data across applications is needed.

By means of Linked Data, we capture learning analytics in a common data model – using the Resource Description Framework (RDF) (Cyganiak, Wood, & Lanthaler, 2014) – and thus enable interoperable data across applications. The main principles of Linked Data are: (i) use URIs as names for things; (ii) use HTTP URIs so that people can look up those names; (iii) when someone looks up a URI, provide useful information, using the standards; and (iv) include links to other URIs so that they can discover more things (Berners-Lee, Hendler, Lassila, & others, 2001). However, instead of requiring existing applications to adhere to these principles, our approach makes use of existing industry standards, and Linked Data is generated automatically. This eases the integration with existing industry workflows.

Our approach comprises two steps. The first step tracks user behavior using generic object models, interfaces, and standards. We make use of the Experience API (xAPI)⁴. xAPI is a technical specification that allows applications to dynamically track, store and share data about learners in their context building on a standardized tracking vocabulary and APIs for learning applications and reporting tools to communicate and exchange data. Thus, adopters can make use of existing specifications and implementations to already track user data within their own context. More detailed context information is stored using the Semantic Exercise Interchange Format (SERIF) (De Meester, et al., 2015). This is a format for describing the content of educational assessments, based on the IMS QTI model from the IMS Global Learning Consortium⁵. These xAPI statements can be logged using any compliant Learning Record Store. We make use of LearningLocker⁶ given its popularity and open license. The second step generates Linked Data out of the user tracking logs. As xAPI

³ https://www.imec-int.com/en/what-we-offer/research-portfolio/leaps_2

⁴ <https://xapi.com/>

⁵ <http://www.imsglobal.org/question/>

⁶ <https://learninglocker.net/>

statements as logged in the JSON format, we can make use of JSON-LD to interpret the existing structure as RDF (Sporny, Kellogg, & Lanthaler, 2014). To define the common semantic meaning of these statements, we make use of an xAPI ontology and a SERIF ontology, building upon previous research, namely, TinCan2PROV (De Nies, Salliau, Verborgh, Mannens, & Van de Walle, 2015)⁷. These ontologies define a common semantic meaning of these statements.

As this approach provides a common model across systems, the learning analytics can easily be integrated, on the one hand, with *Information about the Learner*, and on the other hand, with learning analytics across contexts, thus paving the way for transdisciplinary learning analytics. For example, we can then differentiate between learners that have difficulties learning foreign languages in general, or have troubles with one specific language. To integrate learning analytics across contexts, on the one hand, users need to be uniquely identified across the applications. When a user has different accounts for different applications, a unification of those accounts is needed to combine the learning analytics per user. This can be done using, e.g., another data source that unifies the different user accounts. As we make use of Linked Data, this process is made easier by design, as Linked Data improves integration of multiple data sources. On the other hand, the abilities of the users also need to be aligned across contexts. In this case, an exact match between abilities is not always possible. For example, distinguishing between the "i" and "a" sounds can be related, but not equal to being able to correctly write words containing "i" and "a". For this, semantic models exist – such as the Simple Knowledge Organization System (Miles & Bechhofer, 2009) – that can relate concepts without unifying them. Based on their relatedness, learning analytics can be more or less combined.

Our approach is implemented in two educational applications and tested in multiple schools, resulting in more than two million statements that track user behavior. This initial data gathering is currently used to improve the existing adaptive learning algorithms, and allow an initial evaluation of combining learning analytics across contexts. Future work includes tracking a third educational application and combining transdisciplinary learning analytics. We foresee that this integration can improve personalization (e.g., adaptive learning) and performance support.

References

- Berners-Lee, T., Hendler, J., Lassila, O., & others. (2001, 5). The Semantic Web. *Scientific American*, 284, 28-37.
- Cyganiak, R., Wood, D., & Lanthaler, M. (2014, 2 25). *RDF 1.1: Concepts and Abstract Syntax*. Tech. rep., World Wide Web Consortium (W3C). Retrieved from <http://www.w3.org/TR/rdf11-concepts/>
- De Meester, B., Ghaem Sigarchian, H., De Nies, T., Verborgh, R., Salliau, F., Mannens, E., & Van de Walle, R. (2015, 10). SERIF: A Semantic Exercise Interchange Format. In S. Dietze, H. Sack, E. Simperl, M.-E. Vidal, & S. Peroni (Ed.), *LINKED2015 at ISWC2015*.
- De Nies, T., Salliau, F., Verborgh, R., Mannens, E., & Van de Walle, R. (2015, 5). TinCan2PROV: Exposing Interoperable Provenance of Learning Processes through Experience API Logs. *Proceedings of the 24th International Conference on World Wide Web - WWW' 15 Companion* (pp. 689-694). ACM Press.
- Elo, A. E. (2008, 5). *The Rating of Chess Players, Past and Present*. Ishi Press.

⁷ xAPI used to be named the TinCan API.

Miles, A., & Bechhofer, S. (2009, 8). *SKOS Simple Knowledge Organization System Reference*. W3C Recommendation, W3C. Retrieved from <https://www.w3.org/TR/skos-reference/>

Sporny, M., Kellogg, G., & Lanthaler, M. (2014, 1). *JSON-LD 1.0*. Tech. rep., World Wide Web Consortium (W3C). Retrieved from <http://www.w3.org/TR/json-ld/>

Qing Ma, Lixun Wang

The Education University of Hong Kong, Hong Kong

lixun@eduhk.hk - maqing@eduhk.hk

Examining the role of learner generated information and content in wiki writing in an EAP context

Bio data

Qing Ma is assistant professor at the Department of Linguistics and Modern Language Studies, The Education University of Hong Kong. Her main research interests include second language vocabulary acquisition, corpus linguistics, Chinese English, computer assisted language learning (CALL) and mobile assisted language learning (MALL).

Lixun Wang is Associate Professor in Applied Linguistics in the Education University of Hong Kong. His research interests include corpus linguistics, computer-assisted language learning (CALL), English academic writing, and multilingual education. He has published in journals such as System, Computer-Assisted Language Learning, Language Learning and Technology, and International Journal of Bilingual Education and Bilingualism

Abstract

This study investigated how learner generated information and content, i.e., peer online feedback, provided on a Wiki EAP writing assignment, could contribute to student L2 writing. More than 1000 entries of online peer comments were collected, analysed and compared with more than 400 comments provided by the course teacher, as shown in the marked final writing. An online survey was carried out to collect student perspectives. The results show that (1) peers try to be friendly, supportive and avoid face threatening when providing online feedback in an open learning environment; (2) peer suggestions for improvement can predict well the final score received from the course teacher; (3) peer feedback contributes to the Wiki writing in an EAP context in various ways, both tangibly and affectively.

Conference paper

Introduction

As learning is increasingly viewed as a socially constructed and collaborative process instead of an individual cognitive one, Wiki technologies have provided an exciting platform for collaboration and peer learning (Godwin-Jones, 2003; Parker & Chao, 2007) in many educational areas including language learning, due to its easy accessibility, encouragement of exchanges and possibility of recording collaborative and interactive behaviours. Research shows that the benefits of collaborative writing are multiple, from developing a writer-reader relationship (Kuteeva, 2011), raising audience awareness (Storch, 2012), encouraging critical thinking (Keys, 1994), and improving language accuracy (Fernandez Dobao, 2012).

There are several popular lines of research regarding the contribution of Wiki writing to language learning. First, the focus is on the writing process with specific attention to interaction patterns among students on collaborative writing tasks (e.g. Kuteeva, 2011). Second, some Wiki studies are concerned with comparing Wiki writing with traditional

individual writing (e.g. Elola & Oskoz, 2010). A recent trend in this line is to compare the differences in learner interaction between a Wiki mode and a face-to-face mode (Arnold, Ducate, & Kost, 2012; Bradley et al., 2012). In such studies, some typical interaction patterns are identified and linked to the quality of the final writing product. Apart from collaboration, Wiki is also equipped with the function of online discussion where the writing drafts can be viewed openly by peers who may provide feedback for further revision. Such learner-generated information is valuable for us to examine learner behaviors and contextualise the learning process. The auto-saving of all changes in Wiki writing also generates a big pool of learner-created content which is open to research analysis. Surprisingly, there is little research examining the role of peer feedback on the quality of the final writing product, even though research in second language writing has demonstrated an important contribution of peer feedback to both the process and product of final writing. This study investigated how peer online feedback provided on a Wiki EAP writing assignment could contribute to students' writing processes and improve the quality of their final versions. It aimed to find answers to the following research questions:

1. What online feedback do peers provide on the writing of their classmates?
2. To what extent are peer feedback related to the quality of the Wiki writing?
3. What are the student perspectives regarding the usefulness of online peer feedback on their Wiki writing?

Methodology

Context, participants and Wiki task

This study was conducted with a class of 37 first year university students, aged between 19 and 20, majoring in English at a university in Hong Kong. They enrolled for the course "Introduction to Linguistics" which introduces students to the main theoretical approaches to linguistic study and the formal structures of the English language. A range of topics are covered in this course, including the nature of language, grammar, speech and writing, pragmatics, discourse analysis. One of the important assessment tasks was to require students to work in groups of 3-5 and co-produce a Wiki chapter in accordance with academic norms on an assigned topic among those covered in this course. Each group co-planned and co-wrote a chapter with each member contributing around 900 words per chapter. A total of nine Wiki chapters were produced by the students. A process-oriented approach was adopted: they drafted the chapter and posted it to the Wiki website (Google Sites) and all the students from other groups would comment online individually. They needed to indicate in the comments: 1) what they had learned from reading the chapter and (2) what they thought could be improved in the chapter. Based on the comments received by their peers, each group would revise their chapter and post the final version within two weeks. The finalised chapter would be marked by the course teacher. Commenting on each book chapter was mandatory for all students and would account for some proportion of the final course grade.

Research instrument and data analysis

All peer online comments were collected from all nine Wiki chapters, resulting in more than 1000 entries. A content analysis was conducted in order to find some distinctive categories. All comments fall into two broad categories; they are either *praise* or else *suggestions* for further improvement. Within each broad category, a two-level coding was conducted. After some initial, open coding, the codes for peer suggestions for improvement were combined into six sub-categories: (1) content, (2) organisation, (3) layout, (4) language, (5) references, and (6) technical issues. The last category deals with various technical problems that peers identified in the Wiki draft published on Google sites, such as the picture cannot be displayed in the chapter or only a link is provided instead of posting the whole chapter on the website. As for praise from the peers, likewise all codes are combined into six categories, the first five being identical

with those for suggestions and the sixth being "overall comments". This is classified as a separate category because comments of this kind are often of a very general positive nature, e.g., "Overall, I am satisfied with the progress and I am looking forward to seeing the final product", rather than a specific comment regarding one of the five previously identified specific categories. The teacher comments on the marked final chapters were collected and analysed in order to find out the contribution of peer comments to the quality of student Wiki writing. Like the peer comments, all teacher comments were put into two broad categories, i.e., *suggestions* or *praise*, each being further divided into the six sub-categories: (1) content, (2) organisation, (3) layout, (5) references, and (6) overall comments. The codes were first introduced by one researcher and then checked by another researcher. An inter-coder agreement of 85 was reached and the remaining disputed codes were solved by continued negotiation and recoding.

A bivariate correlation analysis was carried out among five variables: (1) score of the Wiki chapter; (2) peer suggestions; (3) peer praise; (4) teacher suggestions; (5) teacher praise. Each chapter was marked by the class teacher and then moderated by another teacher who teaches a different group of the same course, using the same marking rubrics. The maximum score was 30 and the nine chapters received scores from 13 to 27.

An online survey was developed and sent out to all participants to collect student perspectives on the usefulness of the peer online comments. The students needed to indicate to what extent they thought the online comments helped them improve their Wiki writing from five perspectives, namely, content, organisation, layout, language and references. Apart from Likert-scale questions, there is a final open question to invite student comments.

Results & discussion

Peer online feedback

Tables 1 and 2 show the peer suggestions and praise respectively for the nine chapters. The total praise is almost double the suggestions for improvement (685 vs. 394), showing that peers try to be more friendly, more supportive and less face threatening when providing online comments which can be viewed by the whole class.

Table 1: Peer suggestions for improvement

	Ch.1	Ch.2	Ch.3	Ch.4	Ch. 5	Ch. 6	Ch.7	Ch. 8	Ch. 9	Total
Content	22	14	24	4	17	10	15	23	4	133
Organizational	11	3	6	3	7	2	8	3	0	43
Layout	9	15	15	11	15	34	10	10	6	125
Language	13	12	6	0	7	1	3	1	0	43
Reference	5	0	9	6	2	1	0	3	2	28
Technical issues	1	0	0	0	0	0	0	0	21	22
Total	61	44	60	24	48	48	36	40	33	394

Table 2: Peer praise

	Ch.1	Ch.2	Ch.3	Ch.4	Ch. 5	Ch. 6	Ch.7	Ch. 8	Ch. 9	Total
Content	47	20	34	26	32	29	31	20	23	262
Organisation	2	22	20	15	13	15	10	19	13	129
Layout	2	9	6	8	5	14	15	4	3	66
Language	3	2	1	2	0	0	0	1	4	13
Reference	0	6	0	1	6	1	1	0	0	15
Overall comments	32	25	25	23	22	20	22	14	17	200
Total	86	84	86	75	78	79	79	58	60	685

Teacher feedback

Tables 3 & 4 show the teacher's suggestions and instances of praise for the nine chapters. The teacher provided a total of 431 suggestions and praise on only 39 occasions. Compared with the peer comments, the teacher is obviously much stricter than the peers by providing a considerably larger number of critical comments and making fewer positive comments. Chapter 3 did not receive any positive comment because it was poorly written and received the lowest score (13 out of 30).

Table 3: Teacher suggestions for improvement

	Ch.1	Ch.2	Ch.3	Ch.4	Ch. 5	Ch. 6	Ch.7	Ch. 8	Ch. 9	Total
Content	7	2	8	2	10	3	11	9	3	53
Organisation	2	1	0	1	0	0	0	0	0	4
Layout	1	1	4	9	7	2	5	11	6	46
Language	33	36	22	20	30	12	25	34	53	267
Reference	2	7	5	4	3	2	4	3	2	32
Overall comments	5	0	6	1	5	1	4	5	2	29
Total	50	47	45	37	55	20	49	62	66	431

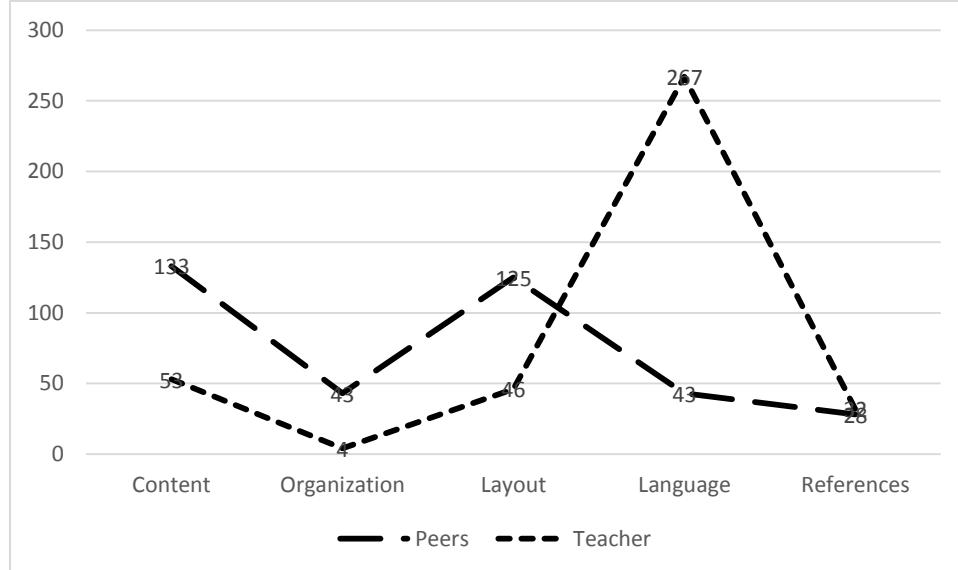
Table 4: Teacher praise

	Ch.1	Ch.2	Ch.3	Ch.4	Ch. 5	Ch. 6	Ch.7	Ch. 8	Ch. 9	Total
Content	0	0	0	6	2	0	0	3	2	13
Organisation	0	0	0	0	0	1	0	0	0	1
Layout	0	0	0	1	0	0	0	0	0	1
Language	0	0	0	0	0	0	0	0	0	0
Reference	0	0	0	0	0	0	0	0	0	0
Overall comments	1	5	0	3	1	7	2	3	2	24
Total	1	5	0	10	3	8	2	6	4	39

Compared with the big contrast in total praise (685 vs. 39), it seems the teacher and peers made similar number of suggestions (431 vs. 394). A chi-square test was conducted to probe into the differences between the teacher and peers' suggestions regarding the five common categories (i.e., content, organisation, layout, language and references). A significant difference was revealed between the distribution patterns for both groups: $\chi^2=264.63$, $df=4$, $p<.001$. See Figure 1 for the distribution patterns for the teacher and peer suggestions. The figure clearly shows that while the distribution patterns of the teacher and peer suggestions regarding content, organisation and layout were similar, the teacher made as many as five times more suggestions regarding language than the peers (247 vs. 49). These suggest that peers, as L2 writers, are fully aware of the importance of

developing good content, organising the content coherently and designing the layout in an EAP context. However, as continuous L2 learners, they are less able to comment on or correct their peers' language. Another conjecture is that peers may find commenting on or correcting their classmates' language on a public learning platform more face threatening and thus try to avoid doing so.

Figure 1: Distribution patterns regarding the teacher's and peers' suggestions



The relationship between the final score of Wiki chapters and feedback provided by peers and teacher

For readers' convenience, Table 5 summarises the information of the final score received for each Wiki chapter together with four other variables, namely, peer suggestions, peer praise, teacher suggestions and teacher praise. A bivariate correlation analysis was carried out to find out the relationships between the five variables (see Table 6 for details). It is shown that there is no correlation between peer suggestions and the final score ($r = -.339, p > .05$), whereas there is a significant negative correction between peer suggestions and the final score ($r = -.559, p < .05$), meaning the greater the number of suggestions the lower the final score tends to be. This confirms that peers are more likely to provide positive and encouraging comments on an open, public learning platform, which may not really reflect the quality of the Wiki writing. However, the negative or critical comments (i.e., peer suggestions) do reflect to some extent the quality of the Wiki writing. Compared with the peer data, the results for the teacher data are the reverse: there is little relationship between teacher suggestions and final score ($r = -.339, p > .05$) but a strong significant positive relationship is found between teacher praise and final score ($r = .895, p < .001$). This clearly shows that the teacher is consistent and judicious in providing praise, which accurately reflects the quality of the Wiki writing.

Table 5: Teacher and peer comments vs. scores of the Wiki chapters

	Ch.1	Ch.2	Ch.3	Ch.4	Ch. 5	Ch. 6	Ch.7	Ch. 8	Ch. 9
Score	20	24	13	27	22	26	20	23	21
Peer suggestions	61	44	60	24	48	48	36	40	33
Peer praise	86	84	86	75	78	79	79	58	60
Teacher suggestions	50	47	45	37	55	20	49	62	66
Teacher praise	1	5	0	10	3	8	2	6	4

Table 6: Correlations (Pearson r) among the five variables

	Score	Peer suggestions	Peer praise	Teacher suggestions	Teacher praise
Score	1	-.599*	-.276	-.339	.895**
Peer suggestions	-.599*	1	.588*	-.106	-.674*
Peer praise	-.276	.588*	1	-.540	-.367
Teacher suggestions	-.339	-.106	-.540	1	-.429
Teacher praise	.895**	-.674*	-.367	-.429	1

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).

Student perspectives of online peer comments

An online survey was developed based on the five categories identified for the peer comments. It was sent to all the students in the class and the response rate was fairly good (=81%). Table 7 provides the mean and standard deviation of the Likert-scale questions. The highest means concern content (4.43), organisation (4.39) and layout (4.43). Earlier in Table 1, it shows that the peer suggestions for content and layout are the most frequent (133 and 125 respectively). Also, in Figure 1, the distribution patterns of content, organisation and layout regarding the teacher's and peers' suggestions are very similar. Linking these results together, it can be concluded that the peers perceived the comments received on these categories to be very useful by their classmates for helping the group to improve the final Wiki chapter. The lowest mean lies in the category of language (4.02), which is consistent with the earlier result that a much lower number of peer comments were made on language (43).

Table 7: Mean and Standard Deviation of the Likert-scale questions in the survey

Survey items 6-point Likert-scale questions (1= strongly disagree; 6= strongly agree) N=30, response rate= 81%	Mean (Max=6; Min=1)	SD
1. The online comments helped us improve the content of our Wiki chapter	4.43	0.86
2. The online comments helped us improve the organisation of our Wikibook chapter	4.39	0.83
3. The online comments helped us improve the layout of our Wikibook chapter	4.43	0.81
4. The online comments helped us improve the language of our Wikibook chapter	4.02	0.91
5. The online comments helped us improve the referencing in our Wikibook chapter	4.13	0.96

The open questions yielded 22 comments, 20 being positive and 2 negative. The analysis of the positive comments shows that the online peer comments benefited students in improving their Wiki writing from three perspectives. First, the peer comments help students know about the audience's views/perspectives in order to improve the Wiki writing, such as "*it can give us feedback and learn what other students think so as to improve our work*". Second, the comments encourage and motivate students to perform better, such as "*some comments would be encouragement for our group, which motivated us to prepare better for the coming presentation in class*". Third, the peer comments also help students proofread and detect mistakes, flaws, such as "*classmates help the proof-reading of the Wiki chapter, where our group may not be able to notice the mistakes*"

Conclusion and implications

The current research shows that wiki is an excellent tool for students to author content of learning and co-construct meanings by writing collaboratively and learning from each other. Previous research on wiki writing often focuses on EFL or ESL contexts. This study examined the role of learner-generated information and content in an EAP context. While engaged in a linguistics course, students were divided into groups with each working on a Wiki chapter on a chosen topic as a way to facilitate their learning of the course content as well as train their EAP writing ability. A number of interesting findings emerge regarding the role of peer comments on Wiki writing in an EAP context.

First, the results show that peers try to be friendly, supportive and avoid face-threatening when providing online comments in an open learning environment by providing overwhelmingly more praise, which may help boost the motivation of other groups in writing and learning, but these positive comments do not necessarily reflect the true quality of the writing. Having said this, the finding that the peer suggestions can predict the Wiki writing quality quite well indicates that the peers have acquired a good knowledge about EAP writing and are able to offer relevant critical comments for their classmates to improve their writing. In future Wiki writing tasks, teachers may highlight the importance of peer suggestions and urge students to treat peer suggestions more seriously in revision.

Second, peers made a large number of critical comments (suggestions) regarding the content and organisation of the Wiki chapter, but a considerably lower number of critical comments on the use of language. By contrast, it is the teacher who made the largest number of critical comments on language as a more authoritative and proficient language user. This, on the one hand, suggests that the first year students are less able to comment or correct their peers' language in the EAP context. On the other hand, they may try to avoid doing so on an open learning platform to reduce face threatening. In future, teachers may encourage students to look for language problems/issues as a way to encourage their L2 learning, but this can be arranged with the possibility of displaying the peer comments only to the group rather than to the whole class to reduce face threatening in an open learning environment such as Wiki.

In addition, an online survey was developed to collect student perspectives. The results show that students find the peer comments helpful in improving the content, layout, organisation, language and referencing of the Wiki chapter; and the peer comments help them improve the chapter after considering audience's views/perspectives.

This study shows clearly that peer online feedback contribute to the Wiki writing in an EAP context in various ways, both tangibly and affectively. Future study should investigate to what extent students have actually addressed the suggestions made by peers and how their revision is linked to the quality of the final Wiki writing.

References

- Arnold, N., Ducate, L., & Kost, C. (2012). Collaboration or cooperation? Analyzing group dynamics and revision process in wikis. *CALICO Journal*, 29, 431–448.
- Bradley, L., Lindström, B., & Rystedt, H. (2010). Rationalities of collaboration for language learning in a wiki. *ReCALL*, 22, 247–265.
- Godwin-Jones, B. (2003). Blogs and wikis: Environments for on-line collaboration. *Language Learning & Technology*, 7(2), 12–16.
- Elola, I., & Oskoz, A. (2010). Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning & Technology* 14(3), 51–71.

Fernández Dobao, A. (2012). Collaborative writing tasks in the L2 classroom: Comparing group, pair, and individual work. *Journal of Second Language Writing*, 21, 40–58.

Keys, C. W. (1994). The development of scientific reasoning skills in conjunction with collaborative assessments. An interpretive study of six ninth-grade students. *Journal of Research in Science Teaching*, 31, 1003–1022.

Parker, K.R., & Chao, J.T. (2007). Wiki as a teaching tool. *Interdisciplinary Journal of Knowledge and Learning Objects*, 3, 57–72.

Storch, N. (2012). Collaborative writing as a site for L2 learning in face-to-face and online modes. In G. Kessler, A. Oskoz, & I. Elola (Eds.), *Technology across writing contexts and tasks* (pp. 113–129). Texas: CALICO: Texas State University.

Paper presentations

Ahmed Abdulateef Al Khateeb

King Faisal University, Al-Ahsa, Saudi Arabia

ahalkhateeb11@gmail.com - ahmed_9114@hotmail.com

Developing continuous professional development (CPD) courses through telecollaboration integration across EFL teachers in Saudi Arabia

Bio data



Ahmed Al Khateeb is a PhD holder from the University of Southampton, Graduate School of Humanities, Modern Languages, United Kingdom. He works as an assistant professor and Chair of Department of English Language at King Faisal University, Saudi Arabia. His main research interests include Technology-enhanced Language Learning and CALL, Online Testing and Language Assessment and Cognitive Linguistics.

Abstract

The role of telecollaborative competence and its reinforcement in mainstream language education programs have become a necessity particularly for twenty-first century language teachers. Telecollaboration is in fact a form of web-based collaboration, or online exchange that supports the development of online communicative skills since individuals can be connected to other communities for linguistic and cultural interactions. On this basis, this paper focuses on the researcher's reflections and the data collected from approximately 250 teachers of English as a foreign language (EFL) in Saudi Arabia regarding telecollaboration-related practices, including their experiences and perceptions as well as their willingness to be part of such courses. Engaging teachers in this way is worthwhile, as very few studies have been conducted in this particular context. This paper will emphasize the factors that are crucial for the successful integration of telecollaboration as part of CPD for EFL teachers in the Saudi context in the Saudi context; including the assessment of CPD in Saudi Arabia and the type of tasks needed. This exploratory research aims to explore the potential benefits and challenges of such programs such as whether they are cost-effective, an avenue for establishing rapport between the east and the west and if they provide a chance to offer opportunities to exchange linguistic and cultural aspects.

Conference paper

Introduction

Recent development in technology have had a greatly impact on professional language learning and language teacher training. The wide variety of technologies has increasingly become part of individuals' daily routines due to their usefulness in formal and informal language learning settings (Kruk, 2017). According to Kulavuz-Onal (2018), recent advances in the technology used in English language instruction have afforded

'multimodality', 'human-to-human interaction', 'content creation on the Web', 'social networking', 'international collaboration', and 'real-time communication'. In this paper, and based on the researcher's self-reflection and qualitative analysis using two standardized questionnaires (Kurek and Muller-Hartmann, 2017 and O'Dowd' model of telecollaborative teacher, 2013) administered to a large sample of teachers, the researcher will briefly investigate the efforts which have been made to develop telecollaborative practice and CPD in Saudi Arabia in the last decade. The researcher will then suggest steps to be taken for a telecollaborative-oriented CPD course for EFL teachers in Saudi Arabia, and their counterparts in various places, as part of their in-service training. This proposal will detail 1) the possible stages of constructing a sound program that would meet EFL teachers' needs; along with 2) the type of tasks which can be designed to be appropriate to the cultural norms. The last part of the paper will discuss the expected outcomes of such a program, including the benefits to and challenges for this community, since telecollaborative-oriented CPD courses are considered as a relatively new practice to them.

The crucial driving force for conducting this exploratory study is to lay down the corner stone, as few studies have explored telecollaborative-oriented CPD courses in Saudi Arabia, with research on the subject mostly being carried out Europe and South Asia. Accordingly, this research underpins the researcher's reflections on the implementation of telecollaborative-oriented continuous professional development courses that target English language teachers at different stages (primary, intermediate and secondary) of general education in Saudi Arabia. This current research intends to answer the following research questions:

- What are the crucial issues for the successful implementation of telecollaborative-oriented CPD courses among Saudi EFL teachers?
- What are the expected outcomes and constraints to be confronted during the implementation of telecollaborative-oriented CPD courses among Saudi EFL teachers?

CPD and Telecollaboration: decoding the concepts

A huge amount of literature has shed light on both continuous professional development (CPD) courses and telecollaborative practices. Furthermore, research has shown their influence on first, as well as foreign, language learning and language teacher training; English as a foreign language teachers in particular. CPD enables an individual to focus on specific skills and knowledge that are needed to be acquired over a short period of time. It reinforces what Albert Einstein stated 'Education is not the learning of facts, but the training of the mind to think'.

Moreover, CPD for teachers has become significant for teachers, as it allows individuals to track and document the skills, knowledge and experience that they gain through their work, beyond just initial training. It is argued that the significance of CPD is because of its main concentration on revealing students' needs as well as their outcomes (Earley and Porritt, 2014). A widely cited definition of CPD is:

'...all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school and which contribute through these to the quality of education in the classroom. It is the process by which, alone and with others, teachers ... acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice.' (Day, 1999: 4).

This definition, according to Borg (2015), expresses the multidimensional aspects of CPD in relation to behaviours, emotions, thinking and knowledge. Furthermore, CPD is considered an influential practice in effective educational and language learning systems where the enhancement of teacher quality, students' outcomes and course organization can all be taken into account (Borg, 2015). In addition, CPD may occur naturally in

informal settings or through deliberate purposeful tasks in more formal settings (Kennedy, 2011). Therefore, the professional training of teachers through technology and its relevant tools is seen as a step to improve students' performance and students' learning.

Given this understanding of CPD, technology helps in-service professional training of teachers to eradicate teacher's isolation and to connect them with experts in curriculum and global teacher community (Carlson and Gadio 2002). Therefore, telecollaboration, or international collaboration, is promising technology that could foster language development and resource diversity among language teachers, including English teachers of English as a foreign language (EFL) in remote areas. Telecollaboration enables telecollaborators, including teachers, to design learning activities for use in-class and to work together in teams despite being located in various places. Furthermore, telecollaboration, also referred to as Virtual Exchange or Online Intercultural Exchange, was shown by O'Dowd and Lewis (2016) to encourage participants to engage in task-based interaction through online-oriented communication technologies under the supervision of their teachers.

Telecollaborative-oriented CPD courses for in-service teachers

Professional development courses, as Borg (2015) indicated, can take place in various forms and involve a number of options including: organizing reading and reflection groups and personal learning networks, establishing collaborative lesson planning and peer observation, establishing professional learning communities or communities of practice, and conducting action research and participatory practice. At the same time, it should be indicated that teacher roles in telecollaborative-oriented classes differ from traditional classes where teachers, in the former, are treated as e-moderators (Clavel-Arroitia and Pennock-Speck, 2015). In this sense, several experimental studies have integrated telecollaboration into professional teacher training; particularly using an 'experiential modelling approach' to provide language teachers with a real-life experience and training for expected outcomes in the classrooms (Guichon and Hauck, 2011, 188). For instance, a telecollaborative exchange-oriented CPD course has been designed for a group of Spanish language teachers with American peers using the 'Second life' tool (Antoniadou, 2011). In addition, a similar course has been developed between German language teachers and English language teachers who worked together online in order to reform learning tasks (Müller-Hartmann, 2012). Such redesigned tasks should engage language teachers with specifically-designed tasks that feature content related to pedagogical-digital competences, intercultural competences, critical and thinking competences and foreign language competences (O'Dowd, 2017). O'Dowd (2017) confirmed that tasks involved in telecollaborative-oriented CPD course must range from information exchange to analyzing cultural practices, to working on collaborative projects.

As far as telecollaborative-oriented CPD in Saudi is concerned, it seems that most studies focus on CPD, without exploring aspects of technology such as telecollaboration. Sywelem and Witte (2013) claimed that there is a need to link professional development efforts with relevant classroom topics and the strategies that will contribute to determining the knowledge and skills needed and can all feed into teacher involvement, professional growth and reinforcing mentoring relationships among various teachers. Alrabai (2017) also confirmed the significance of CPD that takes into account training EFL teachers in learner autonomy, as well as enabling them to be involved in decision-making. In 2012, CPD courses for EFL teachers to pursue their professional training were only available in only two universities in Saudi Arabia (Zohairy, 2012). In fact, according to Al-Seghayer (2014), English language professional development training is still inadequate and attention needs to be paid particularly to the following areas: EFL syllabus design, cultural awareness, language program evaluation, language planning and policies and information and communication technologies.

Methodology and the research context

In this research, the data were collected in a mixed-approach method (qualitatively and quantitatively-oriented) including questionnaire, personal interview and focus group. Yet, due to the space restriction, this paper will show the findings which have been driven from the qualitative analysis.

The qualitative - analytical – analysis of data is based on the researcher's self-reflections of the data collected from the participants regarding participating in telecollaborative-based CPD courses of around 250 teachers of English as a foreign language (EFL) in Saudi Arabia, including their experience and perceptions, as well as their willingness to be part of such courses.

The current project has an objective that is represented by enriching those teachers to be part of interactive telecollaboration courses; which are based on interpersonal exchange and communication, information collection and analysis and problem solving. Among the objectives of the project is to foster a new culture that promotes EFL teachers to seek knowledge and share it along with reinforcing the internal motivation to pursue professional development after graduation from the university and throughout the years.

The telecollaboration project urges teachers to communicate electronically by email, discussion tools, real-time text, teleconferencing or video conferencing (e.g., global classrooms - group-to-group exchanges that work on a common topic). The project also desires teachers collect, compile and compare different types of information for information exchanges, database creation and electronic publishing. The newly suggested telecollaborative project integrate technologies including internet which can support peer-feedback and mutual critique, parallel problem solving and online simulations for solving complex problems.

Unlike the Saudi context, in some European contexts, telecollaboration in the form of e-Twinning, has been implemented as a prominent tool for enhancing teachers' and students' linguistic and intercultural competencies (Camilleri, 2016). In a nutshell, it is desired that Saudi EFL teachers adopt telecollaboration and its associated culture to foster continuous professional development. This would involve the training of Saudi EFL teachers who are teaching in various stages (primary, intermediate and secondary) to design tasks, implement them appropriately and deal with recent applications is considered as part of the newly suggested course.

Findings and discussion

RQ1. Successful integration of CPD courses among Saudi EFL teachers

The first aim of this study was to extend understanding of the critical factors that needed to be considered for the successful integration of CPD courses. Based on the researcher's self-reflection and the initial analysis of feedback from Saudi EFL teachers, finding content relevant to learners' needs, engaging learners in making decisions about the content and process, and reinforcing teachers and learners in the process of examination and review have been all found to be fundamental. Such findings are in agreement with Borg (2015), who claimed the factors given are crucial for effective CPD that has a positive effect on teachers, learners and organization. In addition, further issues have been identified as significant in professional CPD practice as shown by Borg (2015), these include: subject matter knowledge, knowledge of learners and learning, materials design, assessment literacy, motivation and confidence, and qualities for self-directed learning, specifically: reflection, inquiry, collaboration and networking.

The teachers encountered by the researcher lacked a full understanding of the terms 'telecollaboration' and 'professional development' or 'in-service training'. This finding is consistent with Al Khateeb (2018) who claims that Saudi EFL teachers need to be more exposed to telecollaborative-oriented training for the purpose of professional development. The current study has also shown that the successful integration of

telecollaborative-oriented CPD courses is an advanced, on-going stage; which must be preceded by: raising awareness, understanding the nature of this professional practice, and gradually engaging teachers in this professional practice. This process of integration is achieved via identifying appropriate digital content, following guidelines of e-safety and data protection, designing participatory-oriented tasks and activating the culture of autonomous learning. Furthermore, according to CPD framework for teachers which has been designed by British Council (2011) twelve features are suggested as being essential for CPD professional practice. They are as follows: planning lessons, understanding learners, managing the lesson, knowing the subject, managing resources, assessing learners, integrating technologies, taking responsibility for CPD, using inclusive practices, using multilingual approaches, promoting the 21-century skills and understanding educational policies.

The analysis has also shown that the successful integration of any CPD course is guaranteed by the institutional adoption of such courses. Part of this process of adoption should be fulfilled by the Ministry of Education by setting-up similar training courses across the Kingdom of Saudi Arabia. One way in which a professional development training course could be created by building a 'twinship' between the British Council and the U.S. Embassy to satisfy the needs of the entire community of EFL teachers in Saudi Arabia (Althobaiti, 2017).

RQ2. Expected outcomes/constraints of telecollaborative-oriented CPD courses for EFL teachers

As mentioned earlier, running CPD courses are usually exhausting and time-consuming. Using technology in CPD training would enable tasks to be achieved in less-time, along with empowering participants to take part in online collaboration and the exchange of information, as several teachers have confirmed this issue. A mentoring scheme would be also promoted as individuals become more willing to share knowledge and collaborate with each other in a virtually-oriented setting. This in line with what Borg (2015) suggested that CPD does not only support the development of individuals, but rather the institutions themselves, which thus has a positive impact on students' outcomes. The consideration of technologies, which is represented by its numerous tools such as Skype, Viber, Dropbox ... etc., in CPD courses for EFL teachers, can aid participants' communication practices, self/group-reflection skills and the writing process.

Despite the expected outcomes given, the current findings have revealed that tight deadlines and lack of time are amongst the major pitfalls of telecollaborative-oriented CPD courses for EFL teachers. Akdemir (2017) identified a lack of ICT skills and the discrepancies between telecollaborative applications and curriculum design. Regardless of the shortcomings given, the conclusion has proven that EFL teachers are highly motivated to integrate the technology and human resources and use them to design creative professional development programs to create virtual partnerships.

A significant recommendation has been reached out that is telecollaborative-oriented CPD courses is highly recommended; which needs to be set up officially. On the basis of data collected, there is a massive need for CPD courses, whether online or offline which can positively direct teachers to evaluate their performance and self-progress. The officials should also find the appropriate CPD courses and make them part of the developmental plan for each teacher; which are driven from learners' interests and teachers' needs. Such courses are needed to be assessed regularly in a macro- and micro-levels.

References

- Akdemir, A. S. (2017). eTwinning in Language Learning: The Perspectives of Successful Teachers. *Journal of Education and Practice*, 8(10), 182-190.

Al Khateeb, A. A. (2018). Assessing English Teachers as a Foreign Language (EFL) Telecollaborative Competence: A Case Study from Saudi Arabia. *English Language Teaching*, 11(4), 52.

Alrabai, F. (2017). Saudi EFL Teachers' Perspectives on Learner Autonomy. *International Journal of Linguistics*, 9(5), 211-231.

Al-Seghayer, K. (2014). The Four Most Common Constraints Affecting English Teaching in Saudi Arabia. *International Journal of English Linguistics*, 4(5), 17.

Althobaiti, H. (2017). How Can In-service Development Take A Part in Saudi English Teacher Development? *British Journal of Education*, 5(3), 21-29.

Antoniadou, V. (2011). Using Activity Theory to Understand the Contradictions in an online Transatlantic Collaboration between Student-teachers of English as a Foreign Language. *ReCALL*, 23(3), 233-251.

Borg, S. (2015). Teacher Cognition and Language Education: Research and Practice. Bloomsbury Publishing.

Camilleri, R. A. (2016). Global Education and Intercultural Awareness in e-Twinning. *Cogent Education*, 3(1), 1210489.

Carlson, S., & Gadio, C. T. (2002). Teacher Professional Development in the Use of Technology. In J. Sikula (ed.), *Handbook on Teacher Education*. New York: Macmillan

Clavel-Arroitia, B., & Pennock-Speck, B. (2015). Telecollaboration in a Secondary School Context: Negotiation of Meaning in English as lingua franca/Spanish Tandem Interactions.. *revista d'innovació educativa*, (15).

Council, B. (2011). CPD Framework for Teachers of English. British Council.

Day, C. (1999) *Developing Teachers: The Challenges of Lifelong Learning*. London: Falmer Press.

Earley, P. & Porritt, V. (2014). Evaluating the Impact of Professional Development: the Need for a Student-focused Approach. *Professional Development in Education*, 40(1), 112-129.

Guichon, N., & Hauck, M. (2011). Teacher Education Research in CALL and CMC: More in Demand than Ever. *ReCALL*, 23(3), 187-199.

Kennedy, A. (2011). Collaborative Continuing Professional Development (CPD) for Teachers in Scotland: Aspirations, Opportunities and Barriers. *European Journal of Teacher Education*, 34(1), 25-41.

Kruk, M. (2017). A look at the Advanced Learners' Use of Mobile Devices for English Language Study: Insights from Interview data. *The EuroCALL Review*, 25(2), 18-28.

Kurek, M., and Mueller-Hartmann, A. (2017). Task Design for Telecollaborative Exchanges: In Search of New Criteria. *System*, 64, 7-20.

Kulavuz-Onal, D. (2018). Technology in Instruction. *The TESOL Encyclopedia of English Language Teaching*. Wiley-Blackwell.

Müller-Hartmann, A. (2012). The Classroom-based Action Research Paradigm in Telecollaboration. *Research Methods for Online Interaction and Exchange*, 56-192.

O'Dowd, R. (2013). Telecollaborative Networks in University Higher Education: Overcoming Barriers to Integration. *The Internet and Higher Education*, 18, 47-53.

O'Dowd, R., & Lewis, T. (eds.). (2016). *Online Intercultural Exchange: Policy, Pedagogy, Practice* (vol. 4). Routledge.

O'Dowd, R. (2017). Exploring the Impact of Telecollaboration in Initial Teacher Education: The EVALUATE project. *The EuroCALL Review*, 25(2), 38-41.

Sywelem, M. M. G., & Witte, J. E. (2013). Continuing Professional Development: Perceptions of Elementary School Teachers in Saudi Arabia. *Journal of Modern Education Review*, 3(12), 881-898.

Zohairy, S. (2012). Professional Development Challenges and Possible Solutions. In Al-Amri, W., Noor, H., and McGee, I. (eds.). *Saudi Preparatory Year English Program: The Future and Beyond: student, teacher, pedagogy and curricular issues*. (pp. 162-183). Madinah, Taibah University.

Rachel Allan

Mid-Sweden University, Sundsvall, Sweden

Rachel.Allan@miun.se

Recycling the data: building and using a learner business English writing corpus

Bio data



Rachel Allan is a Senior Lecturer in English Linguistics at MidSweden University, Sundsvall, Sweden, where she teaches a variety of web-based courses. Her main research interest is vocabulary acquisition, and she has published a range of papers exploring the teaching, acquisition and use of lexical bundles.

Abstract

This paper describes the construction and use of a small corpus of business English writing by Swedish university students to form the basis of a "learning driven data" (Seidlhofer, 2002) approach to their studies in business writing. Course assignments were used to construct a small corpus which was analysed from a lexical perspective in relation to the Business Service List (BSL) (Browne & Culligan, 2016) and an online Business Letter Corpus (BLC) to identify errors and gaps in knowledge. The findings were then used to inform course content and form the basis for tasks using the learner corpus, which will be integrated into the course structure to provide opportunities for data-driven learning. This study contributes to the growing number of pedagogic applications of learner corpora, demonstrating an approach that could be adapted to a range of other learning contexts.

Conference paper

Introduction

Most Swedish students enter university as competent speakers of English, but their written English skills can lag behind, leading to high demand for courses in writing, particularly in business communication. The present research study began in response to a need to improve the existing online Business Writing course at MidSweden University, and add an advanced module. However, as the level of achievement on the existing course was high, the students' needs were not transparent. To better determine those needs, I built a small corpus of consenting students' assignments from the present course, described below. When grading assignments, I had noted a lack of precision in lexis, and some issues with register and tone so I set about exploring these more systematically. My specific aims were to examine the coverage and use of business vocabulary and phrasal language in the corpus. Online tools were used to do this, and the approach and outcomes are described here. Furthermore, the learner corpus itself is considered as potential input for the learners, through "learning driven data" (Seidlhofer, 2002), and some language points for exploration are identified. To begin with, I will

briefly outline the general research context informing my approach, before describing the study in more detail.

Learner corpora and learning driven data

Many and varied types of learner corpora have been constructed in recent years, demonstrated by the extensive list maintained by the Centre for English Corpus Linguistics (see <https://uclouvain.be/fr/node/12075>). Alongside large-scale projects such as the International Corpus of Learner English (ICLE) and commercial publishers' learner corpora, many smaller in-house corpora have been compiled. These are generated within a specific learning context, containing written or spoken discourse relating to a specific learning event or events. While small-scale corpora of this kind may lack the generalizability needed for comparative interlanguage analyses, their potential as a teaching resource has been acknowledged (e.g. Cotos, 2014; Guilquin et al., 2007; Granger, 2002, 2009; Mukherjee & Rohrbach, 2006; Nesselhauf, 2004; Seidlhofer, 2002). In-house learner corpus data is valuable to both teacher and learner. The teacher can use it, data-driven learning (DDL) style (Johns, 1991), by searching for keywords and looking for patterns in the resulting data, to find out about learner language use, using this to inform curriculum and materials design (Granger, 2002). For learners, it is relevant, having been collected from peers experiencing the same learning environment, and it can help raise awareness of linguistic deficiencies they may share in a non-personal, non-threatening way (Seidlhofer, 2002). The fact that it is not their own writing, but is *like* their own, encourages greater objectivity. Learning driven data (LDD) and DDL are complementary processes (Seidlhofer, 2002), as lexical patterns found in the learner corpus can be explored in an expert corpus so that differences may be noticed and corrected (Flowerdew 2012). The benefits of DDL have been widely demonstrated in recent years (see Boulton & Cobb 2017 for an overview), whereas applications of learner corpora in the classroom have been slower to emerge, and the present study aims to add to these.

Learning context

The specific learning context for this study is a Business Writing course at Mid-Sweden university (7.5 credits). To enrol, students must fulfil general admission requirements and have English proficiency equivalent to a minimum overall score of 6.5 in IELTS Academic Training (minimum 5.5 in each skill). Most course participants are advanced in, or have completed their primary degree, and are looking ahead to prepare for employment in the future. The majority of these students are Swedish with a high level of spoken English. The course aims to improve both comprehension and production of a range of different types of written business communication. The course outcomes indicate that the student should be able to understand, recognize and produce different types of written business documents in English, recognize and produce different styles (formal, informal, informative) of written English, and engage in collaborative work to improve their own and other students' written business English. The course is delivered online using the learning platform Moodle, and runs part-time over a 20 week semester. All teaching is carried out via Moodle; course material is posted, lectures can be accessed, and forum discussions take place there. The course is designed so that student learning is a process; there is obligatory group work involving peer reviewing and responding to other students' writing, followed by editing before submission for grading. Thus assignments submitted are generally of a high standard, with most basic language errors edited out, and these are what formed the basis of the learner corpus discussed here.

Collecting the learner data

Although the digital nature of the course meant that assignments were readily available to form a corpus, this was restricted by institutional requirements. University policy requires a written signature on a designated consent form before student work can be used for research purposes. Given that all course delivery is web-based via Moodle, and no other aspect of the course required students to print, sign and scan material, it was

difficult to get students to respond to this request. As a result, two terms were needed to gather the data, and the resulting corpus is smaller than had been envisaged (although the possibility to add further data remains). The requirement for digital privacy reduced the data further, as one assignment involved a resumé and cover letter, which could not be sufficiently anonymised. As a result, the corpus consists of four assignments (three of which consist of multiple documents) from two cohorts of students in two consecutive terms, a total of 33 students. The small size of the corpus and the range of text types included is acknowledged as a limiting factor in this study, but even a limited corpus like this can offer some insights into learner performance, particularly when the learner profile is homogeneous. The types of business writing and word counts from the various assignments are shown in Table 1.

Table 1: Composition of the Learner Corpus

	Business Writing	Word count
Assignment 1	Request letter	5,220
	Reply letter	5,942
Assignment 2	Complaint letter	7,382
	Claim letter	5,590
	Adjustment letter	5,156
Assignment 3	Proposal	10,720
	Memo	5,318
Assignment 4	Informal Report	25,174
Total		70,502

The assignments were anonymized, coded and saved as plain text documents so that they could be analysed using AntConc (Anthony 2018). The coding facilitated manipulation of the corpus, e.g. for the correspondence portion to be easily extracted.

Lexical profile of the learner corpus

First, I wanted to find out what range of vocabulary was in productive use by the learners. A vocabprofiler on Cobb's (2018) website was used to establish the range of lexis in the corpus, using the Business Service List 1.01 (BSL) (Browne & Culligan, 2016) option. The BSL identifies 1700 business-related words extracted from a corpus (approximately 64 million words) of business texts, newspapers, journals and websites, giving up to 97% coverage of general business English materials when combined with the 2800 words of the New General Service List (see Browne & Culligan 2016 for an account of this). Although the BSL is most relevant as a measure of receptive vocabulary, it offers a useful indicator of productive ability in business-related lexis.

Table 2 shows the learner corpus broken down into levels of frequency of lemmas (headword and inflections) used at the 1- 3K level of the NGSL and those occurring on the BSL list. The majority of the words used were from the first 2K of the NGSL, which would also be a typical profile for native speakers (Cobb, 2008). Less frequent words also occur, with just under half of the 3K words represented, as do lexical items from the BSL, with 203 of the 1200 lemmas on the BSL present in the list. This demonstrates some productive ability in business vocabulary, but further examination (see Figure 1) shows that 100 of these lemmas appear only once in the corpus, 36 appear twice, 17 are used

three times, 10 four times, and beyond that only 40 words are used five times or more. In short, although knowledge of business-related vocabulary is evident, it is not widely used in the corpus, although this may be due to its limited size.

Table 2: Breakdown of lemmas, types and tokens in the BW corpus by NGSL frequencies, and BSL.

Freq. Level	Lemmas (%)	Types (%)	Tokens (%)
NGSL_1 [1000 lemmas])	924 (42.92)	1783 (32.14)	56144 (<u>79.68</u>)
NGSL_2 [1000 lemmas]	663 (30.79)	946 (17.05)	4586 (<u>6.51</u>)
NGSL_3 [801 lemmas]	363 (16.86)	451 (8.13)	2184 (<u>3.10</u>)
BIZ (BSL) [1200 lemmas]	203 (9.43)	242 (4.36)	1317 (<u>1.87</u>)
Off-List:	??	2131 (38.41)	6235 (<u>8.85</u>)
Total (unrounded)	2153+?	5548 (100)	70466 (100)

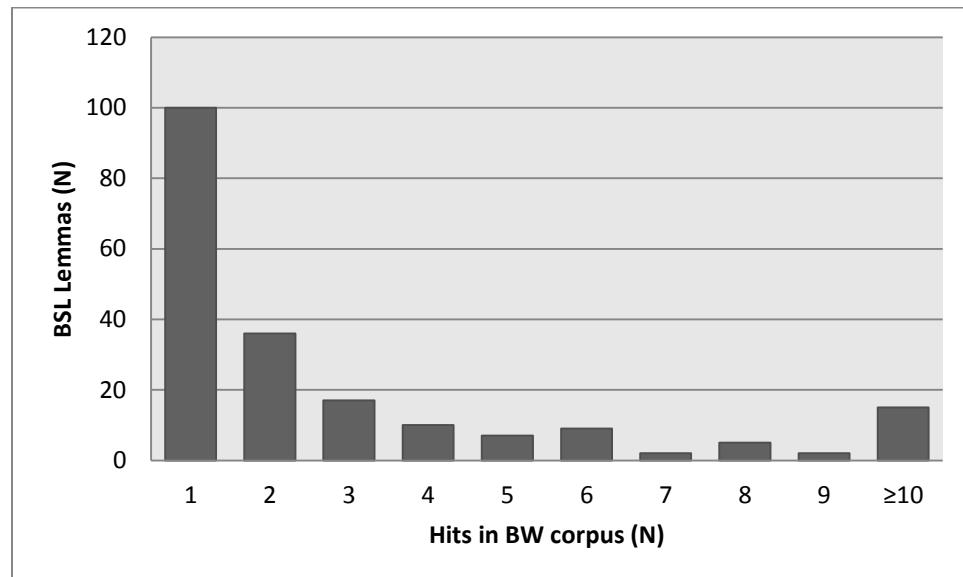


Figure 1: Number of hits on each of the 203 BSL lemmas in the BW corpus

I went on to evaluate the students' ability to use the BSL words. Most of those appearing with higher frequency, i.e. with 6 hits and above, were used appropriately, e.g. *manual* work / read the *manual*, large amounts of *goods* / damaged *goods*, although some were used only in repeated proper nouns, e.g. High Tech Solutions. Of the less frequently used BSL words, some contextual uses lacked precision, either in the choice of word or its collocates, as examples 1 and 2 show (BSL words italicized).

(1) *we are looking forward for this *proposition*

(2) *green products really has taken its *momentum* on the market

Words in this category, i.e. that were infrequently and inappropriately used, offer a starting point for target items that could be explored through an LDD / DDL approach, highlighting potential problems in using the words in context when compared to uses in the expert corpus. A sample approach using the example *contrary* is given in Figure 2.

Compare this learner's use of *contrary* in (A) to some examples found in a native business letter corpus (B)*.

What patterns of use can you find in (B)?

In view of this, how could you improve sentence (A)?

(A)

I have made all necessary purchases on your website, and they have all ended successfully; on the **contrary** to my recent purchase.

(B)

On the **contrary**, the firm's difficulties would seem to be
Quite the **contrary**, we count you as one of our most valuable
would be somewhat to the **contrary**.

if I don't hear from you to the **contrary**, I shall be with you at 3 p.m.

Unless I hear from you to the **contrary**, I will assume that this is the correct

*(for more examples, and more extended contexts, type *contrary* into the search box at <http://www.someya-net.com/concordancer/index.html>) :

Figure 2: Sample LDD / DDL activity

Lexical patterning

Examining lexical bundles (i.e. frequently occurring phrases) offered another approach to finding errors and gaps both in lexis and grammar in the learner corpus. I used data from the Business Letter Corpus (BLC), a one million word corpus of business letters from UK and US sources for this, and used only the letter component of the learner corpus⁸. The BLC website provides access to an online concordancer for the corpus, and key data about the corpus, including frequency lists of meaningful 3-, 4- and 5-word bundles. The 3- and 4-word bundle lists were used for comparison with the learner corpus, complemented with searches in the BLC as necessary. AntConc (Anthony 2017) was used to extract 3- and 4-word bundles from the learner corpus, edited according to criteria stated on the BLC lists, i.e. to remove bundles with less relevant lexical content such as dates / times, opening salutations and closes, and phrases beginning with *and* / *but* / *or* / *me* / *that* (as a relative pronoun). The size of the learner corpus meant that only a small number of bundles occurred; nevertheless cross-referencing these with bundles occurring in the BLC yielded some interesting results. The most frequent bundles, with only a few exceptions⁹, were similar across both lists, but there were differences that offered the potential for learner exploration, some examples of which are outlined below.

⁸ This reduced the corpus to 45,328 words

⁹ Certain bundles which were specific to the assignment aim, e.g. *This proposal deals with* did not occur in the BLC list.

Verb phrases

A key verb appearing in the lexical bundles in both corpora was *appreciate*, appearing with a normalised frequency of 608 per million in the learner corpus and having 1005 hits in the million word BLC. However, there were differences in the 4-word lexical bundles *appreciate* appeared in, as shown in table 2. A common misuse of the form *I would appreciate if* is evident in the learner corpus (cf. Flowerdew, 2012), and a much wider range of forms appears in the BLC; some of these have one or two hits in the learner corpus, but the italicized phrases in table 2 do not occur at all. Of course, the small size of the learner corpus is relevant here. However, such differences offer potential for raising awareness of how modifications like *how much, greatly, very much*, can be used to improve tone and style in business correspondence. This overlaps with another observation in the learner corpus bundles. There was a notable absence of adverbs, apart from *really*, in these. Searches for other adverbs in the learner corpus showed very few examples, several of which demonstrated inaccuracies such as **I would highly appreciate, *it will be strongly advised, *I cannot deeply enough describe my disappointment*. Clearly there is an awareness of collocation with adverbs, but confusion with the appropriate structural form and word choice detracts from this, and suggests another potential focus for DDL with the BLC, where many examples can be found.

Table 2: Four-word bundles with *appreciate* occurring in the two corpora, with number of hits shown.

Learner corpus (45,328 words)		BLC (Someya 2000) (1 million words)	
appreciate you bringing this	3	appreciate it if you	93
*I would appreciate if	3	would appreciate it if	62
		we would appreciate it	52
		I would appreciate your	46
		<i>appreciate your interest in</i>	31
		we would appreciate your	30
		<i>how much we appreciate</i>	30
		<i>would be greatly appreciated</i>	24
		<i>appreciate it very much</i>	23
		<i>we appreciate your business</i>	21

Register

The 3-word bundles demonstrated some issues around the register of language used. In the learner corpus, *looking forward to* was used three times as much as *look forward to* (normalised frequencies of 739 compared to 239 per million, corresponding to a significant over-representation, log-likelihood 47.05, $p<.0001$), whereas the more traditional use *look forward to* was much more common in the BLC. This discrepancy may arise from increased usage of the progressive aspect since the BLC was constructed, and / or a Swedish tendency to overuse this form (Swan and Smith, 2001: 31). However, a search on *looking forward to* in the learner corpus also shows that in almost a third of the hits, the phrase is not preceded by a pronoun or auxiliary verb, intensifying the informality. No similar instances occurred in the BLC. In contrast to this, the rather formal fixed 3-word bundle *come to my attention* was significantly over-represented in the learner corpus, with 8 hits in total, as compared to only 9 hits in the one-million word BLC (log-likelihood 27.29, $p<.0001$). Of course, the learner corpus and the BLC contain different types of correspondence and styles of writing, so some variation in tone can be expected; fuller contexts must be considered to determine appropriacy. This in itself offers a focus for LDD / DDL for the learners, raising awareness about questions of register and tone, which are so important in business writing.

Recycling the data

The next step of the project will introduce learner data and DDL to students in a supportive and positive way. For technical ease, the aim is to provide user-friendly access to the learner corpus and a concordancer in Moodle, with a link to the BLC, which

offers a simple interface and is sufficiently small scale to be manageable (see Flowerdew, 2012). A series of guided tasks will scaffold the learners as they are introduced to and become more familiar with DDL techniques, with the areas outlined above as starting points. In keeping with the co-operative nature of the course, tasks will be carried out in groups with forum discussions that can be monitored, allowing for support to be provided as necessary. Outcomes can be measured both quantitatively at the end of the course, by assessing the body of student work (submitted in digital format, allowing for easy analysis) and qualitatively through the forum discussions and course feedback.

Conclusion

Using data from learners with the same background and linguistic profile offers the potential to focus teaching so that it is directly relevant to the learner. In the same way that data-driven learning can confirm or contradict learner's intuitions about language patterns, learner data provides the opportunity for teachers to confirm intuitions about what is known and what needs to be addressed. Exploring the learner corpus made it evident that problem areas I had identified (register and lack of precision in vocabulary) require further focus, while also revealing gaps (i.e. adverb use) I was less aware of. The analysis pinpointed specific language that requires attention, and a means of raising awareness about it in a relevant way.

Constructing a small learner corpus is easily achieved as digital courses become increasingly common, as long as requirements for data use are respected. Similarly, more user-friendly tools are becoming freely available online, allowing teachers to create lexical and grammatical profiles of their learners with ease, helping them to identify their achievements and needs, and take a systematic approach to personalised course development. There are weaknesses in the case presented here, notably in the limited size of the learner corpus, that the BLC is rather old, and the BLS is more useful as a measure of receptive than productive knowledge. However, even with such limitations, it seems to me that using learner data can only complement a 'one size fits all' published course, and introducing LDD and DDL is a natural development from this.

References

- Anthony, L. (2018). AntConc (Version 3.5.6) [Computer Software]. Tokyo, Japan: Waseda University. Available from <http://www.laurenceanthony.net/software>.
- Boulton, A. & Cobb, T. (2017). Corpus use in language learning: A meta-analysis. *Language Learning*, 67:348-393. doi: 10.1111/lang.12224
- Browne, C. & Culligan, B. (2016). Business Service List 1.01. Available at <http://www.newgeneralservicelist.org/bsl-business-service-list/>. Retrieved 30 March 2018.
- Business Letter Corpus (BLC). Available at <http://www.someya-net.com/concordancer/>. Retrieved 30 March 2018.
- Cobb, T. Compleat Web VP! [computer program]. Accessed 30 March 2018 at <https://www.lextutor.ca/vp/comp/>
- Cobb, T. (2008). Some research uses of Vocabprofile. Available at <https://www.lextutor.ca/vp/>. Accessed 30 March 2018.
- Cotos, E. (2014). Enhancing writing pedagogy with learner corpus data. *ReCALL* 26(2): 202-224.

- Flowerdew, L. (2012). Exploiting a corpus of business letters from a phraseological, functional perspective. *ReCALL* 24(2): 152-168.
- Gilquin, G., Granger, S. & Paquot, M. (2007). Learner corpora: The missing link in EAP pedagogy. *Journal of English for Academic Purposes* 6(4): 319-335.
- Granger, S. (2009). The contribution of learner corpora to second language acquisition and foreign language teaching: A critical evaluation. In K. Aijmer (Ed.) *Corpora and Language Teaching* (pp. 13-34). Amsterdam/Philadelphia: Benjamins.
- Granger, S. (2002). A bird's eye view of learner corpus research. In S. Granger, J. Hung, & S. Petch-Tyson (Eds.) *Computer learner corpora, second language acquisition and foreign language teaching* (pp. 3-33). Amsterdam/Philadelphia: Benjamins.
- Johns, T. (1991). Should you be persuaded: Two examples of data-driven learning materials. *English Language Research Journal* 4: 1-16.
- Mukherjee, J. & Rohrbach, J.-M. (2006). Rethinking applied corpus linguistics from a language-pedagogical perspective: new departures in learner corpus research. In B. Kettemann & G. Marko (Eds) *Planning, Painting and Gluing Corpora. Inside the Applied Corpus Linguist's Workshop* (pp. 205-232). Frankfurt: Peter Lang.
- Nesselhauf, N. (2004). Learner corpora and their potential for language teaching. In J. Sinclair (Ed.), *How to Use Corpora in Language Teaching* (pp. 125-152). Amsterdam/Philadelphia: Benjamins.
- Seidlhofer, B. (2002). Pedagogy and local learner corpora: Working with learner-driven data. In S. Granger, J. Hung, & S. Petch-Tyson (Eds.) *Computer learner corpora, second language acquisition and foreign language teaching* (pp. 213-234). Amsterdam/Philadelphia: Benjamins.
- Swan, M. & Smith, B. (2001). *Learner English*. 2nd Edition. Cambridge: Cambridge University Press.

Alberto Andújar, María del Mar Haro-Soler*

University of Almería, Almería, Spain

*University of Granada, Granada, Spain

alberto.andujar@ual.es - mmar.haro.soler@gmail.com

Telecollaboration through Web RTC: building bridges

Bio data



Alberto Andújar is Lecturer at the Department of English Studies of the University of Almería (Spain). He is specialized into learning technologies, virtual environments, telecollaboration and mobile learning, applied to language learning and teaching. He is also participating in competitive projects related with technology and language learning.



María del Mar Haro-Soler is a PhD candidate at the Department of Translation and Interpreting of the University of Granada (Spain), where she is carrying out her research on translation students' self-efficacy beliefs. Since 2014 she has taught translation (English-Spanish) at the undergraduate Degree in Translation and Interpreting of said institution and has worked as a sworn translator.

Abstract

The present research investigated the potential of the WebRTC (Web Real-time Communication) protocol and P2P communication to develop an online synchronous learning environment. A telecollaboration environment was designed through an Internet application providing Web RTC. Students had the opportunity to learn about the platform and use this technology through an eTandem exchange. A survey about students' pre-existing knowledge and an end-of-the-course survey were provided in order to observe students' perceptions about the activity. Pitfalls and opportunities for synchronous online learning were also regarded. Overall, positive conclusions on the use of Web RTC were drawn. Students did not need to download any specific software, accessing any of the browsers supporting this technology such as Google Chrome, Safari, Mozilla Firefox, Microsoft Edge or Opera and starting the video conference merely with an internet link. This link gave access to a private online room where students could interact and exchange opinions with their peers without having to pay or register any application. Thanks to the characteristics of this technology, open content was generated by participants in the exchange where they took advantage of the interaction for language learning. Information collected from participants required special permission from each of

the Universities and students' permission was also regarded to exchange their contact details with their peers.

Conference paper

Introduction

The limited characteristics of traditional classrooms environments have given rise to a constant search for new ways of expanding in-class time in second language environments. In this respect, new ways of communication have been investigated as it is the case of telecollaboration and eTandem. The need for immersive second language environments providing learners with authentic and relevant input, has been sought thoroughly by foreign language teachers. In this sense telecollaboration, understood as the process of communicating and group work from different places through the use of digital or online tools (Dooly, 2017), has experienced a significant evolution within the last years. New systems have appeared, facilitating and providing a higher number of opportunities for language interaction through the web. Thus, in order to explore new possibilities for language practice, we decided to implement Web Real-Time Communication (Web RTC) in a second language classroom environment. This P2P protocol allows teacher and students to interact without downloading or installing any specific screen-casting application or software (Ito, Niibori & Kamada, 2016). Thus, teachers and students are able to avoid potential drawbacks such as the cost of the application required for the interaction as well as problems arisen from installing a software in a specific operating system. Web RTC offers free P2P communication through the browser, thus merely with a link, students are able to communicate with their peers. This technology, as of March 2018, is supported by almost every existing browser, including Google Chrome, Safari, Mozilla Firefox, Opera or Microsoft Edge. Furthermore, operating systems in mobile phone such as IOS or Android have incorporated this technology, indicating that mobile phones are also capable of handling this technology and therefore, offering opportunities for language interaction anytime and anywhere (Kukulska-Hulme, 2009).

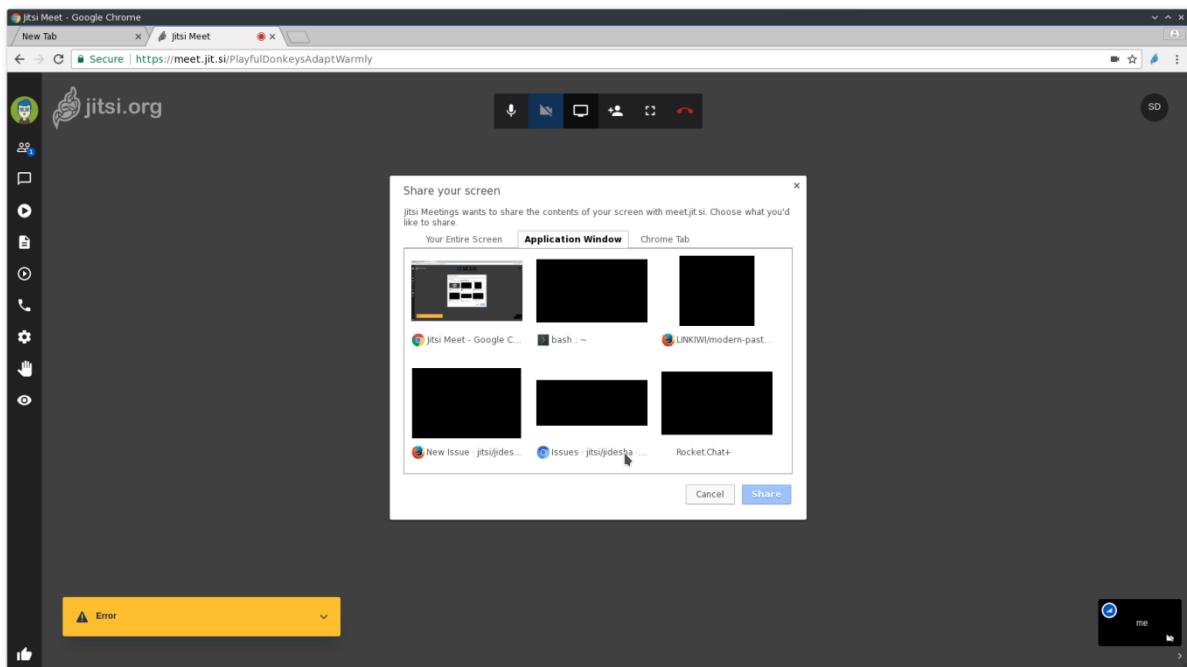
Different studies have explored the teaching and learning benefits of telecollaboration through the use of the applications previously mentioned. It is worth mentioning Karabulut and Karabulut & Correia (2008) or Schullo et al., (2007) and their investigations about the use of platforms offering videoconferencing functionalities such as Elluminate, Adobe connect or Ivisit. In this sense, recent studies have analysed the potential benefits of these applications for teaching and learning in skype and adobe connect (e.g., Akbaba & Baskan, 2017; Austin et al., 2017; Bolona-Lopez et al., 2015; Moore and Fodrey, 2018). These telecollaboration tools were found to foster distance teaching and online learning. Specifically, in the field of language learning, linguistic gains, intercultural competence and students' perception have been investigated. Studies such as Tian and Wang (2010) concluded that telecollaboration became a fertile ground for language exchange by focusing on the use of etandem via Skype. Etandem or teletandem refers to the situation where students exchange the role of the native speaker by swapping the L1 used in order to put both into practice (Pérez-Hernandez, 2014). Linguistic gains through skype and adobe connect have also been reported in further studies (e.g., Godwin-Jones, 2005; Romaña Correa, 2015; Terhune, 2015), emphasizing the potential this environment offers for second language development and learning.

In the case of Web RTC, the number of studies addressing this technology for learning purposes is very scarce and, even more, if we focus on language learning. Kokane et al., (2014) use this technology as platform for interaction with 3D virtual tutors, allowing students the possibility to chat with them as well as listening to virtual narrations. Similarly, Osipov et al., (2016) used Web RTC to create an online platform with

predefined scenarios where students could communicate with each other as well as with their instructor. Students engaged through the platform in task-oriented interactions in order to practice their language skills. Due to the recent development of this technology, students experienced connectivity problems as not all the browser supported this technology. Currently, the problems previously mentioned have been overcome as the use of Web RTC has evolved swiftly since it started.

The Web RTC protocol was used to carry out a language exchange between students of two different universities, in this case the University of Almería (Spain) and Fayetteville University (North Carolina). Through an online webpage using this technology, students were able to use the different functionalities provided such as videoconferencing or screen and document-sharing. Thanks to the characteristics of the protocol, information does not go through a server, thus information exchange is faster and delays in videoconferencing are avoided as opposed to some applications previously used for this purpose such as Skype or Adobe Connect. The platform allowed students to create a private room for the videoconferencing and hence, language exchange.

Figure 1. Example of the Jitsi interface.



Study

The investigation involved a total of 32 students who participated in the language exchange. During the investigation, personal data were collected in advance, exchanging students' contact information in order to start the telecollaboration process. Permission was required in both universities to get students contact details and share them with their peers. With the aim of facilitating students' interaction, a timetable with the participants in the exchange was created. Information about the learning process was analysed, assessing participants' perceptions during the language exchange. Furthermore, information about the learning environment was collected in order to observe its potential and possibilities for language development and learning. As this exchange involved two different universities as well as two different teachers, the data arisen from the interaction required special permission in advance from each of the Universities in order to publish any information concerning this investigation. Special forms had to be filled in and authorise before data collection. A pre-existing knowledge survey and an end-of-the course survey were used to analyse students' perceptions about platform and the online exchange.

Results of the pre-existing knowledge survey arose relevant information in order to observe students' characteristics at the beginning of the interaction. In this vein, Table 1 shows how familiar students were with the activity carried out.

Table 1. Pre-existing knowledge survey on ICT, telecollaboration and eTandem.

Use	N	Mean	SD
ICT	32	2.28	1.11
V.Environments	32	2.69	1.25
Internet for study	32	3.25*	1.24
Chat Communication	32	2.53	1.04
ICT tools at University	32	2.41	1.07
Internet in private life	32	4*	1.16
Videochats	32	3.06	1.31
Jitsi	32	1.87*	.33
Telecollaboration project	32	1.87*	.33
Online language exchange	32	1.68*	.47
Etandem	32	1.84*	.36

*Statistically significant differences $p < .05$

Inferential statistics were used through the use of one-sample T- test in order to observe the differences among the items taking into consideration in the pre-existing knowledge survey. This test was selected as there was no information about the characteristics of the sample studied and gave us the possibility to observe students' previous knowledge about telecollaboration, etandem, Jitsi and chat-based communication among others. A likert-scale indicated students' use of the elements that this etandem interaction later put into practice from 1 (minimum) to 5 (maximum). Yes/no questions were codified into 1 (Yes) and 2 (No) in order to carry out the statistical analysis. Test value was set at 2.5 as it was the average between minimum and maximum score in the likert-scale. Mean scores in the case of 'Internet use in private life' ($t = 7.29$, $gl = 31$, $p < .05$) as well as Internet use for study ($t = 3.4$, $gl = 31$, $p < .05$) indicate a heavy use if of the Internet

among students participating in the activity. Low mean scores found in the case of students' use of Jitsi ($t = -10.52$, $gl = 31$, $p < .05$) as well as in terms of their participation in a telecollaboration project ($t = -10.52$, $gl = 31$, $p < .05$), online language exchange ($t = -9.76$, $gl = 31$, $p < .05$) and eTandem ($t = -10.06$, $gl = 31$, $p < .05$), indicate that participants had very little previous experience as refers to an online language exchange.

An end-of-the-course survey was administered in order to observe students' perceptions about the online interaction with their peers. Open-ended questions were included in this survey so that students could express freely their opinion as well as suggest any possible improvements to the virtual environment. Table 2 shows students' perceptions about the use of Jitsi and the activity carried out.

Table 2. Students' perceptions on Jitsi and eTandem

Students' perceptions	N	Mean	SD
Value of the video-web project	30	4.37*	.765
Use of jitsi	30	3.70*	.952
Functioning of the Virtual Environment	30	4.10*	.803
Usefulness	30	4.50*	.572
Ease to communicate with foreigner	30	3.57*	.728
Interest created by the activity	30	4.43*	.626

*Statistically significant differences $p < .05$

Further close items were elaborated in order to have an insight into students' perceptions. In this vein, Yes-No items were incorporated into the survey, showing an incredible acceptance earned by the activity. Students answered questions such as "incorporating eTandem into the course", "carrying on participating in the virtual project" or "recommending eTandem to peers" with more than a 95% of positive answers in each of them. Statistical analysis was also used to observe significant differences in the end-of-the-course survey. Once again, a one-sample T-test was used to evaluate students' responses. A likert-scale indicated students' perceptions from 1 (minimum) to 5 (maximum) and the Test value was set at 2.5 as it was the average between minimum and maximum score in the scale. Mean scores in each of the items indicated significant differences particularly in terms of potential value of the video-web project, interest created by the activity and usefulness. As regards to Jitsi, our Web RTC platform, students' mean reached 3.70 ($t = 6.90$; $gl = 29$, $p < .05$), suggesting a positive perception of the students towards the use of this technology.

It is also worth mentioning open-ended items that offered relevant information regarding students' perceptions. In this sense, when asked whether they preferred face-to-face or eTandem, most of the students indicated that, in case it was possible, face-to-face conversation was much better than online one. Nevertheless, most of them consider this virtual platform as a good alternative. Some of the negative aspects they indicated had to do with the poor Internet connection which led to communication breakdowns. Some of the students associated at first these communication problems with the platform, nevertheless after trying a different one such as Skype, they realized it was a problem of the Internet. Other negative aspects found dealt with the time difference and the difficulty to arrange a time with their peers, sometimes giving rise to students connecting to the platform at different times. On the other hand, students indicated positive aspects as a result of the online interaction such as the possibility of improving their English or meeting new people, particularly native speakers different from the teacher of the module.

Conclusion

Web RTC becomes an open environment where eTandem facilitates interaction and language production. As opposed to those virtual platforms where licenses are required and the access to language interaction is limited only to those able to afford them, Web RTC becomes an accessible tool that may potentially shift the "traditional" systems in use for telecollaboration. In this vein, pedagogical implications must be drawn as the use of eTandem implies a higher amount of practice time where students can benefit from the interaction with native speakers, expanding in-class time. This case study did not focus on the learning outcomes but on students' perception about the use of the application, nevertheless the potential of eTandem and telecollaboration for language learning has already been highlighted in the existing literature. Thus, as language teachers, it is necessary to take into consideration the integration of open educational resources that may provide students with necessary tools and learning situations to access authentic target language.

Students' perceptions towards the use of this kind of communicative environment were found to be positive, most of them indicating that this kind of experiences should be integrated into the language course. Furthermore, the possibility of speaking with different students led to participants having to adapt to certain accents, pronunciations and tone, thus forcing students to shape their language competence of the target language.

In order to develop this kind of exchange, there is a need for cooperation between institutions and practitioners to connect classes and increase the possibilities for second language interaction. Language teachers cannot limit themselves to in-class explanations as the traditional constraints of a classroom environment do not provide enough opportunities for language practice. Thus, telecollaboration and eTandem become available tools to expand and foster the cross-cultural and language competence of students.

References

- Akbaba, Y. & Baskan, F. (2017). How to merge courses via Skype? Lessons from an interantional blended learning project. *Research in learning technology*, 25, 1-18.
- Austin, N., Hampel, R. & Kukulska-Hulme, A. (2017). Video conferencing and multimodal expression of voice: Children's conversations using Skype for second language development in a telecollaborative setting. *System*, 64, 87-103.
- Bolona-Lopez, M. D. C., Ortiz, M. E., & Allen, C. (2015). Using mobile devices and the Adobe Connect web conferencing tool in the assessment of EFL student teacher performance. In F. Helm, L. Bradley, M. Guarda, & S. Thouësny (Eds.), *Critical CALL – Proceedings of the 2015 EUROCALL conference*, Padova, Italy (pp. 77–83). Dublin: Research-publishing.net

Dooly, M. (2017). Telecollaboration. In Chapelle, C. A. & Sauro, S. (Eds.), *The handbook of technology and second language teaching and learning* (pp. 169-183). Hoboken, NJ: Wiley Blackwell.

Godwin-Jones, R. (2005). Skype and podcasting: Disruptive technologies for language learning. *Language Learning & Technology*, 9(3), 9-12.

Ito, D. Niibori, M. & Kamada, M. (2016). A real-time web-cast system for classes in the byod style. In 19th International Conference on Network-Based Information Systems (NBiS2016) (pp.520-525). Ostrava, Czech Republic.

Karabulut, A., & Correia, A. (2008). Skype, Elluminate, Adobe Connect, Ivisit: A comparison of web-based video conferencing systems for learning and teaching.

In K. McFerrin, R. Weber, R. Carlsen, & D. Willis (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2008* (pp. 481-484). Chesapeake, VA: Association for the Advancement of Computing in Education.

Kokane, A., Singhal, H., Mukherjee, S. & Reddy, G.R.M. (2014). Effective e-learning using 3D virtual tutors and WebRTC based multimedia chat. In: *2014 International Conference on Recent Trends in Information Technology* (pp. 1-6). Chennai.

Kukulska-Hulme, A. (2009). Will mobile learning change language learning? *ReCALL*, 21(2), 157-165.

Moore, R. L. & Fodrey, B. P. (2018). Distance Education and Technology Infrastructure: Strategies and Opportunities. In Piña, A. A., Lowell, V. L. & Harris, B. R. (Eds.), *Leading and managing e-learning, Educational communications and technology: issues and innovations* (pp. 87-100). Cham, Switzerland: Springer.

Osipov, I.V., Volinsky, A.A. & Prasikova, A.Y. (2016). E-learning collaborative system for practicing foreign languages with native speakers. *International journal of advance computer sciences and applications*, 7(3), 40-45.

Perez-Hernandez, D. (2014). Technology provides foreign-language immersion at a distance. *Chronicle of Higher Education*, 60(34), 14.

Romaña Correa, Y. (2015). Skype™ conference calls: a way to promote speaking skills in the teaching and learning of English. *PROFILE Issues in Teachers' Professional Development*, 17(1), 143-156.

Schullo, S., Hilbelink, A., Venable, M., & Barron, A. E. (2007). Selecting a virtual classroom system: elluminate live vs. macromedia breeze (Adobe Acrobat Connect Professional). *Journal of Online Learning and Teaching*, 3(4), 331-345.

Terhune, N.M. (2015). Language learning going global: linking teachers and learners via commercial Skype-based CMC. *Computer Assisted Language Learning*, 29(6), 1071-1089.

Tian, J., & Wang, Y. (2010). Taking language learning outside the classroom: Learners' perspectives of eTandem learning via Skype. *Innovation in Language Learning and Teaching*, 4(3), 181-197.

Ghada Awada & Hassan Diab

American University of Beirut, Beirut, Lebanon

ghadawada@gmail.com - diab@aub.edu.lb

Effect of webquest media on learners' intercultural communication, debate and motivation

Bio data



A Fulbright Scholar at NCSU. A Faculty member at the American University of Beirut and the Lebanese American University. A developer of the AUB Arabic and English Teaching Certificate programs. An author and co-author of English textbooks and 55 publications related to ICT, Curriculum reform and teaching English in public and private schools as well as in higher education. Worked as a teacher and coordinator of Languages at public schools for 21 years. An ESCWA, UNESCO and WB Consultant. Was awarded appreciation certificates by the Ministry of Education and Higher Education (2004), Lebanese university (2004), Lebanese American University-CEP Teaching Excellence trophy (2013), American University of Beirut Certificate of Appreciation(2017), Lebanese Army Academy Research Center Trophy(2017).

Diab was an electrical engineering professor at the American University of Beirut (AUB). He also served as vice president for regional external programs at the AUB from October 2006 to June 2011 On 13 June 2011, he was appointed minister of education and higher education as part of Najib Mikati's cabinet.

Abstract

The study reports the relative effectiveness of the Inquiry-Based Intercultural Communication Technological Model (IBICTM) on improving the debate skills and increasing the intrinsic motivation of university learners ($n=48$). The integration of the IBICTM into the experimental group classes framed the instruction. Participants in the control group were given the regular debate instruction without the IBICTM. The study employed the mixed methods pretest- posttest control group experimental design whereby two writing intact classes were randomly assigned to control and experimental conditions. The pretest and posttest along with the Intrinsic Motivation Questionnaire(IMQ) were employed to elicit data needed to validate or reject the main assumption of the study. Data were collected using the 2 ANCOVA tests. The findings proved that the IBICTM could improve the debate skills which prepare learners for argumentative writing; furthermore, IBICTM could increase learners' intrinsic motivation whereas the control group participants ($n=24$) didn't show similar improvement.

Conference paper

Introduction

The review of the Computer Assisted Language Learning(CALL) and language learning motivation research necessitated conducting the present study at two American Universities located in Beirut, Capital of Lebanon, in order to investigate the effectiveness

of WebQuest media resources, Task and Process sections on improving the debate skills and increasing the intrinsic motivation of English as a Foreign Language (EFL) learners who are native speakers of Arabic enrolled in a writing course.

On one hand, interactive technologies progressively provide learners with opportunities to communicate across places and cultures. Holistic approaches and Information Communication Technology(ICT)models can improve intercultural communication communication(Ware,2013). Learners can improve their intercultural communication skills and be engaged affectively, psychologically, and cognitively in environmental and social sustainability contexts by employing the experiential and simulation based holistic approaches(Sigmar, Hynes, &Hill,2012). Furthermore, new media could improve tremendously communication across cultures(Shuter,2012). However, more communication studies should be conducted to investigate the effect of new media on intercultural communication since language teachers still encounter obstacles and feel demotivated due to a lack of training in the integration of technology into classrooms (Borthwick & Gallagher-Brett, 2014).

The present study intended to investigate if Intrinsic motivation could improve information retention as research indicated(Black & Allen,2017). 'Intrinsically motivated students can be expected to learn more and retain what they have learned better than students who are forced against their will' (Black & Allen,2017, p.91). However, Alderman (2013) states that intrinsic motivation could be a necessity, yet it isn't enough for attaining academic engagement as activities considered "...required by the curriculum may not be seen as interesting or necessary by students" (p.264).Furthermore, the integration of WebQuest into classrooms could increase learners' knowledge and learning about cultures(Stockwell,2016).

As such, the study addressed the following hypotheses and questions:

1. There is a statistically significant difference between the control group and the experimental group at the 0.05 alpha levels regarding the debate scores.
 2. There is a statistically significant difference between the control group and the experimental group at the 0.05 alpha levels regarding the intrinsic motivation of learners.
-
1. What is the relative effect of IBICTM in comparison with the regular instruction in improving the intrinsic motivation of university learners towards the cultural awareness and intercultural communication debate experience?
 2. What is the relative effect of IBICTM in comparison with the regular instruction in improving the debate skills of university learners?

Literature Review

There is a vital interrelatedness between intercultural communication skills and interactive technologies. The growing globalization and the interconnectedness among societies have spread a lot of information at tremendous speed to a great number of people (Thomas&Evans,2014). Intercultural communication skills can be associated with literacy in the digital age and might encompass a variety of reading and writing skills. These skills include understanding, assessment, and creation of printed and multimodal texts (Ware,2013). Intercultural competence might be theorized in different ways within intercultural communication.However, researchers seem to agree that intercultural competence should be theorized in compliance with cognitive, affective, and behavioral approaches (Bennett, 2010).

Theoretical framework

The present study is framed within the self-determination theory(Black& Allen, 2017),new media and intercultural communication theory(Shuter,2012), Vygotsky's constructionism(Galloway,2001), learner-centered theory(Johnson, 2013) project-based learning (PBL) and inquiry-based approaches(Arsanjani & Faghih, 2015).

Integration of WebQuest into classrooms

WebQuest facilitates web-based investigative tasks that are carried out to promote, understand and reflect the intercultural communication students get engaged in. The WebQuest provides students with different authentic resources selected to fulfill the linguistic and cognitive tasks. The Japanese university students collaborated with students of a different culture to promote the intercultural communication skills through using the WebQuest inquiry-based approach. The results of the study showed participants' decrease in ethnocentricity and improved students' knowledge and an understanding of both their own culture and other cultures(Stockwell,2016).

Interrelatedness between intercultural communication skills and interactive technologies

Intercultural communication competence involves the abilities to interpret and associate information about the learners' culture and the target one. Furthermore, intercultural communication skills involve a certain emphasis on the sub-set skills of interaction. These sub-set skills include introducing topics, supporting conversations, managing miscommunication, showing curiosity, interacting with others' contributions, and revealing logical and sociolinguistic awareness(Yusuf, Natsir& Hanum,2015;Ware,2013).

Intercultural competence and Motivation in higher education

Intercultural competence enables learners to handle diversity and globalization in higher education and it facilitates collaboration among administrators, intercultural researchers, and international education specialists (Liu & Dall'Alba,2012). Motivation is defined "...as the process that arouses, sustains, and regulates behavior'(Forgas, 2014,p.23). As such, learners might have positive attitudes towards "...technology-enhanced intercultural language learning (TEILI), which enabled the learners to experience authentic language learning that fostered linguistic competence and ICC" (Chen & Yang,2014, p.57). Several universities now integrate the awareness of global perspectives into graduate education. However, some universities are still struggling to make an association between global classroom and the global workplace(Barker& Mak,2013).Active communication training should be designed more carefully to professional contexts that demand collaboration and teamwork(Barker, Hibbins,& Woods,2012).

Methodology

The study employed the mixed methods and the pretest- posttest control group experimental design whereby 4 writing intact classes(n=48) were randomly assigned to control and experimental conditions. Quantitative and qualitative data were collected using the 2 ANCOVA tests and pre and post questionnaires. The experimental and control group participants filled out the instrument prior to receiving the instruction and after receiving the debate instruction to express their perceptions of the learning experience. Data were collected using the 2 ANCOVA tests and the two questionnaires. Descriptive statistics (means and standard deviations) were used to address the questions raised in the study.

Participants

A convenient sample total of 104 EFL learners of different cultures were randomly assigned to control and experimental conditions. The experimental group sample employing the CIBICTM included 28 males and 24 females; the control group sample included 30 males and 22 females. The participants are EFL learners of different cultures who received the CIBICTM for a period of 14 weeks at a rate of 3 hours per week. An essential course task assigned to the total of 104 learners was a research project comparing two cultures. The age of the participants ranged from 19- 23 years.

The international participants(n=34) were from 8 different countries and affiliated with 2 American universities in Beirut and enrolled in 4 Rhetoric classes consisting of a total of 104 students (N =104). The experimental and control groups participants were

Lebanese(n=39) and half Lebanese holding another nationality and recently settled in Lebanon(n=9). The experimental group half Lebanese participants(n=5) and their control group counterparts (n=4) were enrolled in two writing classes at two American Universities located in Beirut.

Treatment

The IBICTM treatment given to the experimental group and the regular instruction given to the control group lasted for 14 weeks. Both experimental and control group participants(n=48) were asked to prepare for a debate which demands conducting literature review and compiling information to formulate claims, prepare supporting evidence, expect concessions and prepare refutations so that participants of both groups would be ready to engage in the debate that will be assessed and graded by the researchers and the instructors of the two writing classes. Each group in the experimental sample received IBICTM treatment and was asked to write the claims reflecting the attitudes towards the intercultural communication between the Lebanese and people of any non-Lebanese culture. The similarities and the differences between the Lebanese culture and that of the non-Lebanese participants could enable the students in both experimental and control groups to formulate their arguments. The debate rubric was used to assess claims, opening and closing statements, rebuttals, historical evidence, content knowledge, persuasive appeals, and rebuttals. Moreover, each group in the experimental group only was asked to propose videos and pictures considered significant in introducing others to the cultures they chose for their rebuttals and support. Students were also asked to give their recommendations after reading the WebQuest media resources. The videos and pictures suggested by each group were made available on the one WebQuest which formed the media resources that facilitated doing the tasks uploaded on the Task Section. Furthermore, the WebQuest facilitated the learners' argumentative skills by providing the steps given in the Process section. The WebQuest provided authentic media and recommendations submitted by each group. Furthermore, each group was asked to give recommendations to increase or decrease the intercultural communication among people of different cultures. The experimental group participants received the IBICTM treatment including the WebQuest authentic media. The debaters were divided into groups of Lebanese and non- or half Lebanese in order to ensure intercultural communication. The IBICTM treatment necessitated having each group inquire about the work of other groups while accessing the same WebQuest. The employed WebQuest could display the videos and the pictures given by the experimental group instructor and the researcher. The control group participants received the regular debate instruction with no IBICTM treatment and were asked to conduct a project in which they prepare themselves for a debate involving comparison between the Lebanese culture and any chosen culture. Both groups, the control and the experimental, were asked to do self and peer assessment of the opening and closing statements, rebuttals, evidence, content knowledge, persuasive appeals, and rebuttals. Each debator in both groups was asked to synthesize information from sources after doing certain steps in groups. The debate is on the necessity to have or not to have cultural awareness to develop the intercultural communication skills of people of different cultures.

Instruments

The study employed a debate rubric and The University Student Motivation and Satisfaction Questionnaire version 2 (TUSMSQ2) instrument developed by Neill (2004) to measure students' intrinsic motivation as data collection method. TUSMSQ2 instrument contains 30-items intended to measure both intrinsic and extrinsic motivation of students. Only the two intrinsic motivators; Only the intrinsic motivators; Self-exploration(2, 8,14,20,26) and Altruism(6, 12,18,24,30) measured in 10 items were used in this study. The items were based on five point Likert scale of 1 to 5; 1 being "Very False", towards, 5 being "Very True".

The debate rubric included the following criteria:Opening and closing statements, rebuttals, effective use of historical evidence, content knowledge, Use of persuasive

appeals, and language use and performance. The rubric was employed to assess the debate skills. Moreover, both the experimental and the control group participants were asked to fill out the TUSMSQ2 instrument to reflect the intrinsic motivation towards the IBICTM experience. The researchers along with three other instructors adapted a rubric to help them with the grading of the debate. Quantitative and qualitative data were collected using the 2 ANCOVA tests and the TUSMSQ2. The responses of the experimental and control groups participants(n=48) were used to analyze the data. The debate scores and the TUSMSQ2 intended to elicit information that could prove effectiveness of the IBICTM in improving the debate skills and the intrinsic motivation of the participants of both groups.

Findings

The average score of the writing posttest and TUSMSQ2 of the experimental group is 39.75 and 28.25 respectively which are higher than those of the control group which are 19.71 and 24.21 respectively. As such, the treatment in comparison was the regular instruction was significantly effective in improving the debate skills of the experimental group and in increasing intrinsic motivation. Conversely, unlike the experimental group counterparts, the control group participants didn't show similar positive perceptions of learning.

Discussions

The findings of present study showed significant effectiveness of the Inquiry-Based Intercultural Communication Technological Model (IBICTM) especially that of the integration of the IBICTM encompassing the authentic WebQuest media resources on improving the debate skills and increasing the intrinsic motivation of university learners.

The findings endorsed those of Ware(2013) and Shuter (2012) who asserted that there is a vital interrelatedness between intercultural communication skills and interactive technologies. In the same vein, the findings endorsed those of Sigmar, Hynes, and Hill (2012) that indicated that learners can improve their intercultural communication skills and be engaged affectively, psychologically, and cognitively in environmental and social sustainability contexts by employing the experiential and simulation based holistic approaches. Furthermore, the findings align with those of Black and Allen 2017 that showed that intrinsic motivation could improve learning and with Yusuf, Natsir and Hanum(2015) that indicated that STAD improves Intercultural communication skills entail the reflection of attitudes, character traits, values toward cultural and social differences. The intercultural communication competence involves the abilities to interpret and associate information about the learners' culture and the target one. Furthermore, the findings align with those of Chen and Yang(2014) that revealed that the participants had strong positive attitudes towards technology-enhanced intercultural language learning (TEILI).

Conversely, the findings don't endorse those of Alderman(2013) that underscored that Intrinsic motivation could be necessary but insufficient component for academic engagement. The findings don't endorse those of Barker, Hibbins, and Woods' (2012) that showed that active communication training should be designed more carefully to professional contexts that demand collaboration and teamwork.

However, there are some challenges that encountered the researchers and might be considered as limitations attributed to existent data pertinent to the WebQuest media impact and technical concerns. The examples presented in the videos or articles uploaded by some experimental group learners showed discrepancy between living conditions and requirements in Lebanon and in other selected countries in general. A larger underlying issue was that of the groups' understanding of commonalities and differences among cultures and how to communicate or facilitate communication among people of different cultures. In addition, power outage and intermittent internet connectivity that are

considered common problems across all regions in Lebanon formed another challenge faced by the researchers.

Conclusions

The present study reports the relative effectiveness of the Inquiry-Based Intercultural Communication Technological Model (IBICTM) on improving the debate skills and increasing the intrinsic motivation of university learners. The pretest and posttest along with the Intrinsic Motivation Questionnaire (IMQ) validated the main assumption of the study. The study is significant as it could employ the Inquiry-based Intercultural Communication Technological Model (IBICTM) to improve debate instruction and to increase intrinsic motivation towards conducting culturally-based debate in a setting which ensures intercultural communication. Teachers of different courses are encouraged to employ IBICTM to improve critique and argumentative writing skills of learners.

References

- Alderman, M. (2013). Motivation for achievement: Possibilities for teaching and learning. Routledge.
- Arsanjani, M. & E. Faghih(2015). The impact of the WebQuest instruction system on Iranian intermediate EFL learners' writing performance and perception. *Instructional Technology*, 37.
- Barker, M. C., & Mak, A. S. (2013). From classroom to boardroom and ward: developing generic intercultural skills in diverse disciplines. *Journal of Studies in International Education*, 17(5), 573-589.
- Barker, M. C., Hibbins, R. T., & Woods, P. (2012). Bringing forth the graduate as a global citizen. *International students negotiating higher education: critical perspectives*, 142.
- Bennett, L. (2010). YOUNG LEARNERS. *Technology in Retrospect: Social Studies in the Information Age*, 1984-2009, 33.
- Black,S., & Allen, J. D. (2017). Part 1: Foster Intrinsic Motivation. *The Reference Librarian*, 58(1), 91-105. DOI: 10.1080/02763877.2016.1200515
- Borthwick, K., & Gallagher-Brett, A. (2014). 'Inspiration, ideas, encouragement': teacher development and improved use of technology in language teaching through open educational practice. *Computer Assisted Language Learning*, 27(2), 163-183. DOI: 10.1080/09588221.2013.818560
- Chen, J. J., & Yang, S. C. (2014). Fostering foreign language learning through technology-enhanced intercultural projects.
- Forgas, J. P. (2014). Motivation and its regulation: The control within (Vol. 16). Psychology Press.
- Galloway, C. 2001. Vygotsky's learning theory. In M.Orey (Ed.). *Emerging Perspective on Learning, Teaching and Technology*
- Johnson, M. (2013). The body in the mind: The bodily basis of meaning, imagination, and reason. University of Chicago Press.
- Liu, S., & Dall'Alba, G. (2012). Learning intercultural communication through group work oriented to the world beyond the classroom. *Assessment & Evaluation in Higher Education*, 37(1), 19-32.

Neill J. (2004). The University Student Motivation and Satisfaction Questionnaire version 2. (TUSMSQ2), Centre for Applied Psychology, University of Canberra.

Shuter, R. (2012). Intercultural new media studies: The next frontier in intercultural communication. *Journal of Intercultural Communication Research*, 41(3), 219-237.

Sigmar, L. S., Hynes, G. E., & Hill, K. L. (2012). Strategies for teaching social and emotional intelligence in business communication. *Business Communication Quarterly*, 75(3), 301-317.

Stockwell, E. (2016). Using web-based exploratory tasks to develop intercultural competence in a homogeneous cultural environment. *Innovations in Education and Teaching International*, 53(6), 649-659.

Thomas,M. & Evans,M. 2014.Guest editorial. *Computer Assisted Language Learning*, 27:2, 107-108, DOI: 10.1080/09588221.2014.874101

Ware, P. (2013). Teaching comments: intercultural communication skills in the digital age. *Intercultural Education*, 24(4), 315-326.

Yusuf, Y. Q., Natsir, Y., & Hanum, L. (2015). A Teacher's Experience in Teaching with Student Teams-Achievement Division (STAD) Technique. *International Journal of Instruction*, 8(2), 99-112.

**Ghada Awada, Nuwar Mawlawi Diab*, & Mar Gutiérrez-Colón
Plana****

American University of Beirut, Beirut, Lebanon,
*Lebanese American University, Beirut, Lebanon,
**Universitat Rovira i Virgili, Tarragona, Spain

ghadawada@gmail.com - nuwar.diab@gmail.com - mar.gutierrezcolon@urv.cat

Effect of Blog and Cultural Grouping on Learners' Perceptions of Intercultural Communication and Exploratory Writing

Bio data

Ghada Awada is a senior education consultant and a coordinator of AUB CEC certificate programs at the American University of Beirut. 2016 Fulbright Scholar at North Carolina State University, Ghada Awada holds a Ph.D. with the highest distinction in Applied Linguistics and Special Education from University RoviraiVirgili – Tarragona, Spain and a Ph.D. in Public International Law and International Relations and Diplomacy with the highest distinction from Hautes Etudes Internationales ET Politiques- Paris.

Nuwar Mawlawi Diab, Associate Professor of English and Applied Linguistics at the Lebanese American University, is highly experienced in TESOL and is an expert on writing feedback and assessment. She published articles in international journals (*System, Assessing writing*) and in proceedings; and wrote a book on writing feedback titled *A Comparison of Peer- Versus Self-Feedback on L2 Writing*, published by Scholar's Press, Germany (2013).

Mar Gutiérrez-Colón at the Rovira i Virgili University (URV) in Tarragona, Spain, holds a PhD in Applied Linguistics. She has coordinated the URV Official Master's Degree in Foreign Language Teaching (EFL). She has led research projects on the use of new technologies in language acquisition and distance learning. She is the current Vice Rector of URV.

Conference paper

This study assumes that integrating blog-mediated instruction along with small culturally -mixed group work might improve the university students' perceptions of both intercultural communication and writing research projects. The study rationale emerges from the meta-analysis of the literature which asserts that the current technological developments require intercultural communication skills (Salazar and Agüero 2016, Iinuma, 2016) that can take place within the framework of at least two distinct cultures (Tendera 2016). The study rationale also builds on the meta-analysis of the findings of Fall et al. (2013) and Lam and O'Higgins (2012) which indicated that a blog could improve intergroup communication. Furthermore, the present study is framed within the Innovation Diffusion Theory (IDT) which considers diffusion as the medium "...by which an innovation is communicated through certain channels overtime among the members of a social system" (Rogers 1995: p.10).

As such, this study investigated the effect of blog-mediated instruction and culturally -mixed group work on enhancing the perceptions of intercultural communication and writing projects of university students (n=102) of different cultures enrolled in writing classes in two American universities during a 16-week period. The study employed the control group experimental design whereby blog-mediated instruction on exploratory writing was given to the experimental group participants who were a culturally-mixed group, while regular writing instruction was given to the control group. Data were collected from a reflection log that students wrote in response to guiding questions and also from student interviews. This study underscored the effectiveness of blog-mediated instruction and culturally-mixed group work on improving writing skills and the perceptions of intercultural communication of university students of different cultures(Access <http://intercultural-communication.blogspot.com/>).

Specifically, the study addressed the following questions:

1. Does the use of the blog model improve the exploratory writing of university learners?
2. Does the use of the blog model improve university learners' perceptions of intercultural communication and of exploratory writing?

To answer the first question, pre and post exploratory writing tests were administered. Students whose posttests have shown different exploratory writing proficiency were further analyzed in terms of the utilized exploratory writing rubric.

To answer the second question, reflection log questions and interview questions that focus on power relations between the different cultural members of the experimental group on one hand and their interactions with their teachers via the blog on the other hand were utilized. Students' responses on the reflection log and their interview responses were analyzed to find out how their different power relations manifested through their blog interactions and how it affected their exploratory writing.

3. Methodology

This study was conducted in the writing classrooms of two American universities located in Lebanon. Lebanese and non-Lebanese usually register for this writing course which is a basic requirement for all students irrespective of their pertinent disciplines of study. All writing classes adopted the same writing syllabus which was covered in 3 contact hours given over a period of 16 weeks. One of the essentials of the writing course is the successful completion of an exploratory essay. As such, the blog model and the culturally mixed group work were employed to investigate their effectiveness in improving the experimental group participants' exploratory writing and their perceptions of the learning experience as well as of intercultural communication with peers of different cultures.

3.1 Participants

Participants were university students enrolled in five writing classes which comprised 26 learners from different cultures and nationalities especially that one of the sampled universities included students of 64 nationalities and the second sampled university included students of 36 different nationalities. As

such, a total of 102 students were sampled: 54 students including Lebanese and non-Lebanese formed the experimental group and 48 Lebanese and non-Lebanese as well formed the control group. Students' age in both experimental and control groups ranged from 20 to 24 years. As for the gender, 58 participants were males and 44 were females. All the experimental and control group participants were bilingual and some were trilingual. All the foreign students in both the experimental and control groups had some knowledge of other languages, such as French, English, Italian, Russian, Polish, Swedish, African, or Bengali.

3.2 Instruments

A rubric was utilized to measure and interpret learners' exploratory writing achievement scores on a pretest and a posttest exploratory writing measuring the exploratory writing and the learners' perceptions of intercultural communication and exploratory writing experience. The writing prompt of the pretest was on a personal problem caused by lack of awareness of some cultural features and that of the posttest was on a personal problem caused by a culture shock encountered upon moving abruptly from one community into another due to war or any other threat.

The blog was written by 58 students and was 5-pages long. It was utilized as a discussion forum and used by the culturally mixed group (experimental group).

Moreover, both control and experimental group participants were asked to give reflection logs and to sit for interviews to elicit data on students' perceptions of intercultural communication and exploratory writing experience.

3.3 Treatment

The treatment lasted for a period of 16 weeks. The experimental and control groups were required to write an exploratory pretest at the beginning of the semester prior to the start of the treatment given to the experimental group while the control group received regular exploratory writing instruction focussing only on the process writing approach. The experimental group culturally mixed participants employed group work along with the blog posts prior to the administration of the exploratory posttest. The blog mediated instruction involved sharing posts, giving comments, following the good posts, using pictures and videos for students to present their ideas prior to taking the exploratory posttest. Furthermore, the blog worked as a pool of resources for the experimental group participants who accessed the blog prior to the posttest to be able to synthesize information required to address the different aspects of the problem they explored.

Feedback was given to the experimental group using the blog whereas it was given to the control group participants through face-to face sessions whereby the instructor was the center.

3.4 Data collection

The researchers of the present study employed analytical scoring using the rubric to assess the posttests. Two researchers were teacher educators with doctorates in Applied Linguistics and the third researcher was a holder of a doctorate in English Language and German Studies. To serve reliability purposes, two of the researchers utilized the same rubric to grade the posttests of the control and experimental group participants. At the end of the treatment,

reflection logs and student responses of the experimental and control group participants were analyzed to elicit students' perceptions.

3.5 Data analysis

Analytical scoring was utilized to measure the exploratory writing proficiency. Two teachers of writing marked the participants' writings by using a high impact rubric. The adopted rubric included the following assessment criteria: creativity and innovation determined by the quality of the published posts. When the two teachers disagreed in the score given to an essay, they discussed their grades and arrived at a common grade. The exploratory writing achievement scores of the two groups on the pretest and the posttest were compared.

Descriptive statistics were computed for the experimental and control groups on the pretest and posttest scores. The treatment conditions (control versus experimental) were used as independent variable, with the exploratory writing scores as dependent variables and the pretest scores as covariates. Quantitative data from the pretest and the posttest were analyzed using a paired sample t-test.

Moreover, to analyze the responses of the experimental and control group participants on the reflection logs and the interviews, a manual semantic analysis of the responses was conducted utilizing the themes that emerged from the responses.

4. Results

4.1 Results of exploratory writing

The ANCOVA for experimental versus control post-test exploratory writing scores, after having controlled for pre-test scores existing differences, was found to be statistically significant in favor of the experimental group. The mean scores and standard deviations of the exploratory writing scores for the experimental and control groups were ($M = 77.1276$, $SD = 14.22700$) and ($M = 71.6035$, $SD = 12.10114$), respectively (see Tables 1 and 2), with partial eta square, $\eta^2 = 0.092$ (see Table 3). This means that the learners in the experimental group outperformed their counterparts in the control group.

Table 1: Posttest Descriptive Statistics

Treatment	Mean	Std. Deviation	N
Experimental	77.1276	14.22700	52
control	71.6035	12.10114	50
Total	74.4800	13.92508	102

Table 2: Pretest and Posttest Comparison

Treatment					
Dependent Variable: posttest					
Treatment	Mean	Std. Error	95% Confidence Interval		
Exp.	77.769 ^a	1.7010	Lower Bound	74.775	Upper Bound 80.765
control	70.919 ^a	1.772		67.791	74.291

a. Covariates appearing in the model are evaluated at the following values: Pretest = 67.0700.

Table 3: Summary of Tests

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2889.974 ^a	2	1555.998	13.419	.000	.190
Intercept	21628.887	1	21426.865	182.912	.000	.764
Pretest	2005.089	1	1904.087	16.254	.000	.166
Treatment	1367.409	1	1145.209	9.776	.002	.094
Error	13584.908	99	119.165			
Total	551198.000	102				
Corrected Total	16140.860	100				

a. R Squared = .190 (Adjusted R Squared = .174)

4.2 Results of reflection logs

The themes of interest, motivation and usefulness emerged from the reflection logs. For example, one respondent said, "The blog is a great experience done by my beloved teacher Ghada Awada. She made our time inside the classrooms more interesting since many writing activities are computer-based ones." Another respondent wrote, "Our teacher through the blog made everyone know that we wrote interesting stuff about our cultures." A third respondent said, "The blog provides a lot of information and it is fun to read our posts on Google." One student was very excited about the usefulness of the blog. She said, "I have to thank my instructor for inviting me to the blog since from that blog I went with my friends to many places with my friends, and the blog became a source of many fun things I had with some classmates. It is part of my life. I loved the blog experience very much." As for motivation, one student mentioned that "The blog is motivating because the teacher believes in us and that we can, and we are able to achieve a remarkable success if we share with each other ideas related to cultures." Another said, "The blog enables us to make many writing activities motivating and more expressive by using pictures and videos."

5. Discussions

There are some challenges that faced the researchers and might be attributed to existent data and technical concerns. However, the study findings generated solutions that are based on collected data and on a meta-analysis of previously conducted studies. The experimental group participants concurred that the writing project was interesting, the fact which aligns with some research that indicated that Web 2.0 media might improve communication skills when an interesting project could be implemented for a long period of time (Iinuma 2016; Chen, Shih and Liu 2015; Zhang, Song, Shen, and Huang, 2014). Furthermore, the experimental participants were prompted to utilize the blog features including the posts, comments, auto-correction, videos, links, pictures, editing and sharing features that asserted the effectiveness of the Intelligent Computer Assisted Language Learning (ICALL) environment, which might improve the structure and mechanics of learners' writing (Ai 2017). As such, employing the collected data, the researchers of the present study found out that the web-based collaborative writing tasks carried out by a multi-cultural group using blogs improved the

learners' writing skills and would in turn improve the learners' perceptions of the writing experience (Bikowski and Vithanage 2016).

However, the study findings pertinent to the improvement of writing proficiency were not in alignment with some other research findings which pointed out that collaborative writing might not yield accurate information about the quantity and quality of writing in online environments (Yim and Warschauer 2017). Another ground for disagreement between the present study findings and some other research might be that technology might not support some language teachers who could fail to motivate learners that lack media literacy skills (Borthwick and Gallagher-Brett 2014). More significantly, a third underlying controversy between the present study findings and some other research studies (Fall, Kelly, MacDonald, Primm & Holmes 2013; Chen, 2010) is due to the fact that intercultural communication apprehension might hinder intercultural communication. Conversely, this study's findings indicated that the exposure to intercultural communication might improve cultural competence since individuals might acquire knowledge about their culture and that of others through interactive communication with people from different cultures and through understanding the differences among cultures (Furcsa, 2009).

Accordingly, in addition to the abovementioned research finding contradictions extracted from different data, one major limitation of the study is that intermittent internet connectivity, which hinders learners' collaboration as the blog cannot be accessed offline, has not been addressed by the researchers although power outage and intermittent internet connectivity are considered common problems across all regions in Lebanon.

6. Conclusions

The present study asserted the effectiveness of integrating the blog mediated instruction and the culturally-mixed group work on improving students' exploratory writing skills and learners' perceptions of intercultural communication and of the exploratory writing experience. The interest and motivation aroused by utilizing the blog model along with the culturally mixed group work have improved learners' perceptions and exploratory writing skills. The blog model can be utilized as a discussion forum that can make expedite compiling information, providing feedback, revising, and editing. The culturally mixed group work creates strong bonds among the learners. Hence, teachers are encouraged to utilize the blog model as part of the exploratory writing process. Further studies comprising different contexts and learner profiles should be conducted in order to enable us to investigate the possibility of generalizing the study results.

References

- Ai, H. (2017). Providing graduated corrective feedback in an intelligent computer-assisted language learning environment. *ReCALL*, 1-22.
- Bikowski, D., and Vithanage, R. (2016). Effects of Web-Based Collaborative Writing on Individual L2 Writing Development. *Language Learning and Technology*, 20(1), 79-99.
- Borthwick, K., and Gallagher-Brett, A. (2014). 'Inspiration, ideas, encouragement': teacher development and improved use of technology in language teaching through open

educational practice. *Computer Assisted Language Learning*, 27(2), 163-183. DOI: 10.1080/09588221.2013.818560

Chen, G. M. (2010). A study of intercultural communication competence. *China Review Academic Publishers*.

Chen, W. C., Shih, Y. C. D., and Liu, G. Z. (2015). Task design and its induced learning effects in a cross-institutional blog-mediated telecollaboration. *Computer Assisted Language Learning*, 28(4), 285-305.

Fall, L. T., Kelly, S., MacDonald, P., Primm, C., and Holmes, W. (2013). Intercultural communication apprehension and emotional intelligence in higher education: Preparing business students for career success. *Business Communication Quarterly*.

Furcsa, L. (2009). Outcomes of an intercultural e-mail based university discussion project. *Language and Intercultural Communication*, 9(1), 24-32.

Iinuma, M. (2016). Learning and Teaching with Technology. In *The Knowledge Society: New Literacy, Collaboration and Digital Content*. Springer.

Lam, C. S., & O'Higgins, E. R. (2012). Enhancing employee outcomes: The interrelated influences of managers' emotional intelligence and leadership style. *Leadership and Organization Development Journal*, 33(2), 149-174.

Liu, S., and Dall'Alba, G. (2012). Learning intercultural communication through group work oriented to the world beyond the classroom. *Assessment and Evaluation in Higher Education*, 37(1), 19-32.

Rogers, E. (1995). *Diffusion of innovations* (4th ed.). New York: Free Press.

Salazar, M. G., and Agüero, M. F. (2016). Intercultural Competence in Teaching: Defining the Intercultural Profile of Student Teachers. *Bellaterra Journal of Teaching and Learning Language and Literature*, 9(4), 41-58.

Ware, P. (2013). Teaching comments: intercultural communication skills in the digital age. *Intercultural Education*, 24(4), 315-326.

Yim, S., and Warschauer, M. (2017). Web-based collaborative writing in L2 contexts: Methodological insights from text mining. *Language Learning and Technology*, 21(1), 146-165.

Zhang, H., Song, W., Shen, S., and Huang, R. (2014). The effects of blog-mediated peer feedback on learners' motivation, collaboration, and course satisfaction in a second language writing course. *Australasian Journal of Educational Technology*, 30(6).

Iman Bakhoda & Karim Shabani

Allameh Mohaddes Nouri University, Noor, Iran

bakhodaiman@gmail.com - shabanikarim@gmail.com

Internalization process: capturing L2 learners' personal meaning-making via electronic presentation of a social context

Bio data



Iman Bakhoda is an MA Graduate at Allameh Mohaddes Nouri University, Iran. He published articles in "innovation in language learning and teaching" and in "Asian-Pacific Journal of Second and Foreign Language Education" journals. He also presented in papers international conferences like IELTI 8 and SELT 2015. He is interested in doing research on dynamic assessment, computerized dynamic assessment, and virtual gaming.



Karim Shabani is a Assistant Professor at Allameh Mohaddes Nouri University. He has presented a number of papers in international conferences like ICELT2009 (UPM), TELLSI6, TELLSI7, TELLSI9, TELLSI10, TELLSI11, ILI conference, ICELET2012 (University of Tehran), etc. His areas of interest are Vygotsky's Socio-cultural Theory, (dynamic) testing/assessment and simultaneous interpreting.

Abstract

The transformation of social understanding into personal understanding can be traced back to Vygotsky's sociocultural theory (SCT). He explained that human cognitive functioning is mediated socially through interaction with others and culturally through the use of cultural tools which lead individuals to take control of their mental processing such as attention, perception, and memory. The amalgamation of Vygotskian perspective with L2 domain opens up new horizons to unravel L2 learners' cognitive modification. This study reveals the basic L2 internalization/externalization personal meaning-making process based upon Vygotskian notions in sociocultural theory. Social and personal worlds constantly constrain one another in ways that lead to transformations in both. Following Valsiner's(2014) Internalization/Externalization Model, this study uncovers the difference between 20 homogenized advanced EFL learners and 20 homogenized intermediate EFL learners in making personal sense out of their social foreign context presented with the use of computer. More precisely, software was designed to present 25 episodes of a related social context and capture two groups of EFL learners' intra-psychological personal meaning-making by asking them to present their perspective in three ways as follows: a) score an appropriate punishment for the main character; b) score an appropriate level of blame for the main character; and c) provide oral comment for each episode. Their intra-psychological functioning beyond the presented social material was captured both qualitatively and quantitatively. The collected data consisted of the following for each learner: a) dialogues between EFL learners and a computer

program about adolescent shoplifting; b) the scores each learner gave as punishment in episodes; c) the scores each learner gave as blame in episodes; and d) learners' response latency in the course of presenting the two scores. Learners transformed the presented contexts through their internalizing/externalizing intra-mental operations by interpolating and integrating their personal beliefs and knowledge. Conducted Independent t-test between the two groups' punishment and blame score demonstrated a significant difference over experiencing similar social context. As the learners' manifestation of cognitive processing information, their active response latency was analyzed by diffusion model which uncovered the difference of loading information among learners during giving punishment and blaming scores. Qualitative analysis of the learners' comments also showed different understandings and perception among two groups of learners over the episodes of the social event. The findings elaborate L2 sociogenetic mental functioning in internalization/externalization process and explain how human mental processing simultaneously functions as a social and personal organized system in L2 psychological processing.

Conference paper

Introduction

Vygotsky's introduction of sociocultural theory (SCT) opens up dual functions of social and personal human mind. In contrast to psychological views that distinct social from mental, Vygotsky considered the relationship as a unifying process. Internalization or "ingrowing" (Vygotsky, 1994, p. 65) was the term Vygotsky used to theorize the process of human mind's movement from the inter-psychological world to the intra-psychological world to generate meaning. In inter-psychological plane cognitive functions is a social process (between an "I" and a "You"), and later it turns to an intrapersonal process (between "I" and "Me") (Vygotsky, 1978, p. 56). He considered internalization as a mutual relationship between inter-mental and intra-mental.

Developmentalist (e.g. Cox & Lightfoot, 1997; Valsiner, 1998; Lawrence & Valsiner, 2003) have been attempted to unravel this simultaneous dualistic mental functioning through various theories. The relation of the social mind to the personal mind has become the subject of investigation (Valsiner & van der Veer, 2000; Lawrence and Valsiner, 2003) in acquiring the first language. However, little concrete evidence has been provided to enlighten the relationship between L2 learners' inter-mental and intra-mental functioning in a second language learning context.

Internalization/externalization processes

The internalization and externalization process refer to both levels of taking in and expressing information which rooted in cognitive functioning of the mind. This dual constructive process "transform the "in-coming" messages into a new form (internalization) and compose new messages on the "output" for the social world to experience—and further internalize" (Valsiner, 2014, p. 63). New personal meaning-makings create microgenitically in the interaction of social and personal constraints. This two-folded process of inter/externalizing has been proposed by (Lawrence and Valsiner, 1993, 2003 and Valsiner, 2014). The following graph (borrowed from Valsiner, 2014) explains how inter/externalization process occurs:

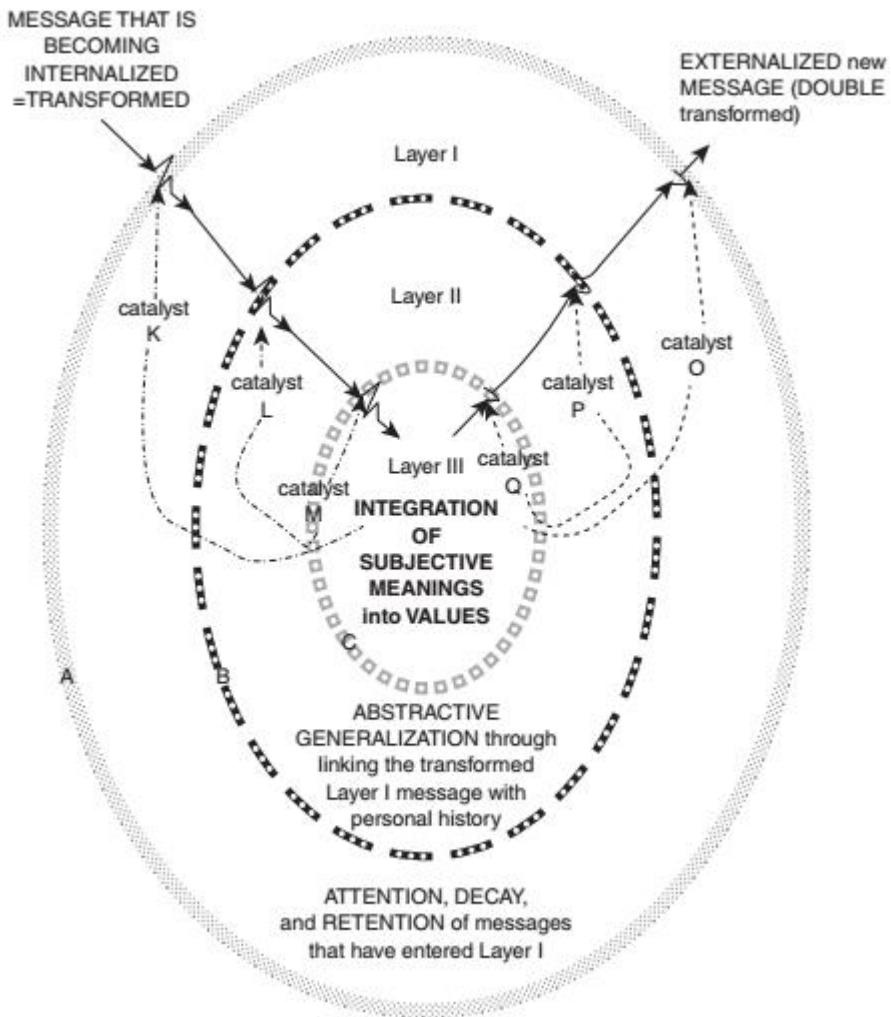


Figure 1. Inter/externalization process (borrowed from Valsiner, 2014)

According to Valsiner (2014), internalization consists of three layers (layer I, layer II, and layer III). It means that a new concept goes through the two outer most layers before reaching the third inner layer (see figure 1). In a reverse direction to internalization process, externalization refers to a path that a concept passes through to be expressed. The model presents the double transformation of internalization and externalization of messages. Incoming message goes through these three functional layers of psychological processing in order to be internalized. The message transformation in each stage consists of maintaining, generalizing, and integrating information.

L2 internalization/externalization research

Although few studies have tried to directly investigate personalization of L2 concepts in foreign language acquisition, some recent studies indirectly strived to capture the L2 internalization/externalization dynamic process through comparing learners' current cognitive ability (known as zone of actual development) with their emerging future abilities (known as zone of proximal development). The rationality underlying this kind of cognitive assessment derived from Vygotsky's notion of cultural artifact and its role on human cognitive regulation which leads to integration of assessment and instruction in a unified procedure (see Poehner, 2008; Poehner, Davin, & Lantolf, 2017). Involving in L2 activities that are mediated either by human (e.g. Shabani, 2012; Poehner & van Compernolle, 2011) or by computer (Bakhoda & Shabani, 2016; Poehner & Lantolf, 2013), learners reach higher mental functioning.

Some researchers (e.g. Bakhoda & Shabani, 2016; and Mayerl, 2013) employed electronic mediations alongside response latency as tools to analyze learners on-going information processing. According to Draisma and Dijkstra (2004), respondents response latency is an indication of their mental loading and information processing.

This study attempts to provide a more vivid picture of L2 internalization and externalization process with the use of electronic presentation of a series of social context. Precisely, we seek to detect L2 learners' internalization /externalization process as well as their response latency in externalizing a foreign social context.

Research question

1. Is it feasible to capture L2 learners' personal meaning making via electronic presentation of a social context?
2. Is there any difference between intermediate and advanced EFL learners' personalizing a foreign social event?
3. Does response latency distinguish EFL learners in internalizing and externalizing L2 social concepts?

Methodology

Study design

This study used both qualitative and quantitative assessment approach to uncover EFL learners intra-mental processing. Therefore, Lawrence and Valsiner's (2003) approach was applied to capture two groups of EFL learners' cognitive functioning at the intrapsychological plane. The presentation of a social event through a computer provides an opportunity to gradually change the context by adding or deleting some information to the previous context.

In this regard, each turning point in a presentation of social phenomenon gives the learners a chance to contemplate and construct their own personal meanings. In this study, learners' microgenetic changes were captured through the scores that the two groups of EFL learners gave as blame and punishment to the main character of the social event in each episode. Also, the participants expressed their opinions after giving score to each episode.

Participants

Non-probability sample design was employed to select two groups of intermediate and advanced EFL learners for current study. To this end, 30 intermediate language learners (out of 93 learners) and 30 advanced EFL learners (out of 66) recruited from 5 language institutes in Chalus, Mazandaran, Iran after taking part in Oxford Placement Test (OPT). The test consists of 60 multiple choice English grammar, cloze test, and reading comprehension questions. Those who scored 1 standard deviation (SD) above and 1 SD below the mean were selected to participate in this study. Intermediate students were between 16 to 20 years old while advanced students were between 22 to 31 years old. The following two tables encapsulate the selected learners' performance on OPT test.

Table 1. Descriptive analysis of intermediate learners' English proficiency at the outset of the study

N	Age	Median	S.D	Variance	Period of studying English
93	16-20	27.07	5.73	32.9	2-5 years

Table 2. Descriptive analysis of advanced learners' English proficiency at the outset of the study

N	Age	Mean	S.D	Variance	Periods of English Study
66	22-31	45.69	7.1	50.7	4-8 years

Context and Procedure of the Study

This study employed software and computers to create a dualistic social phenomenon (the act of inclusive separation of the different parts of a social event) for both groups of EFL learners through presentation of shoplifting episodes by a girl called Sara. The software was responsible for presenting the social episodes, recording the scores learners gave as punishment and blame to Sara's action, and capturing each learner's active response latency. The main theme of the presented context, which borrowed from Lawrence and Valsiner (2003), was Sara's action. Each episode proposed some reasons or add/subtract information to/from the context. Table presents all 25 episodes of Sara's shoplifting.

Table 3. The selected social messages

Number	Social messages
1	Sarah was 15 years old and in high school. One day she walked into a store and took a pair of jeans off the rack. She walked out of the store with the jeans without paying for them. The jeans were worth \$80.
2	The jeans were displayed invitingly in the store, and it was so easy to take them.
3	Sara's parents were breaking up
4	Sara thought shoplifting might help get her parents' attention
5	Sara sometimes felt that she didn't know who she was, and she was having one of those days.
6	One of the popular girls at school had dared her to try shoplifting.
7	She was anxious to fit in with her friends.
8	Sara thought that shoplifting was a part of the normal growing-up process.
9	Sara had never stolen before.
10	She came from a good family and had never been in trouble.
11	When she was caught she was very sorry, and decided that it would never happen again
12	She was a good-natured girl.
13	She liked pop music
14	In the store, she put on the jeans in the changing room and then put her own clothes over the top.
15	She waited until the salesperson was in another part of the store, then left taking the jeans.
16	She told her parents that she would be at the library that afternoon.
17	She was bored and thought that shoplifting would give her a boost
18	She found he enjoyed the challenge
19	She had several pairs of jeans at home
20	Her parents gave her plenty of pocket money.
21	Sara's best friend refused to go shoplifting with her.
22	Sara's parents had brought her up to believe that stealing was wrong.
23	It felt good to get something for nothing.
24	What is your final reaction to Sara's story?
25	Would you please summarize out loud for the researchers what you believe to be the main points of Sara's story

The presented context was appropriate to delve into respondents cognitive functioning and quantitatively capture their personal meaning making because it followed Valsiner's empirical criteria for examining internalization/externalization processes. According to

Lawrence and Valsiner (2003) the presented context should provide respondents with a challenging event, which has enough complexity and novelty, to allow them make their own meaning. He elaborated that the event procedure should be designed in a way that gives the respondents an opportunity to express their intra-psychological talk while they are dealing with the event over time. Here, giving two scores (0 to 10 point) as punishment and blame to Sara's action in each episode made the learners intra-mental thinking observable. Moreover, learners' interaction with the computer could reveal learners' internal thought and feeling about each episode.

The software was designed to capture learners' ongoing thinking and response latency through the following procedure:

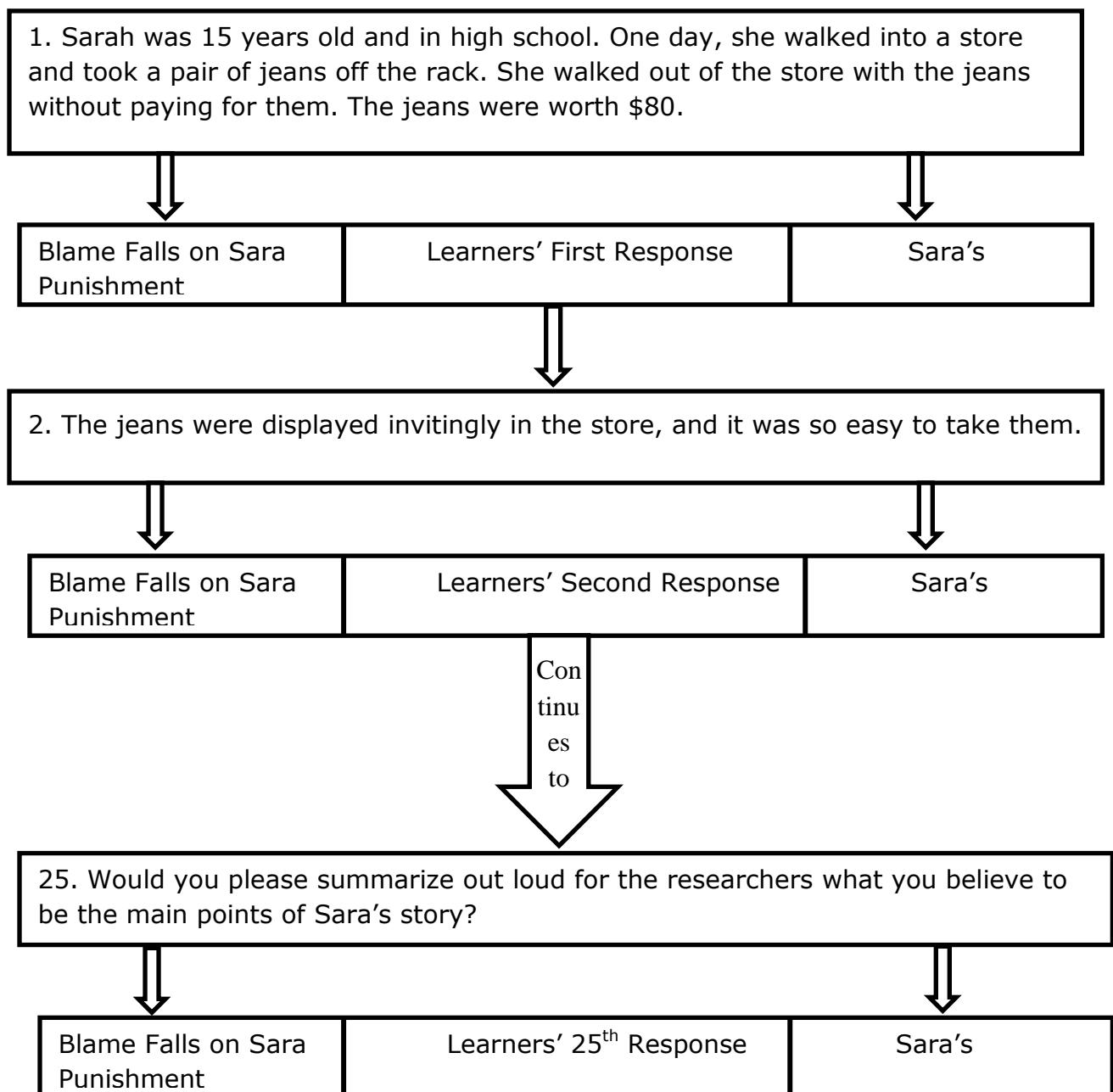


Figure 2. The presentation of computerized social messages

As it is shown in the above figure, after the presentation of first episode of the context, each learner gave two scores to show their perspective toward the amount of punishment that was appropriate for Sara and the amount of blame that rest on Sara for her action. Besides, learners' active response latency was recorded during scoring

procedure. After the scoring procedure, learners were asked to express their perspective (in English) in a minute. Their comments were recorded by the software for further study.

Result

To capture learners personal meaning-making, three sets of data were extracted from the software including the scores learners given to each episode, their interaction after scoring process, and their response latency in scoring procedure. The two groups recorded interaction in each episode alongside the fluctuation of the given scores indicated that each learner make his/her own meaning out of the social context.

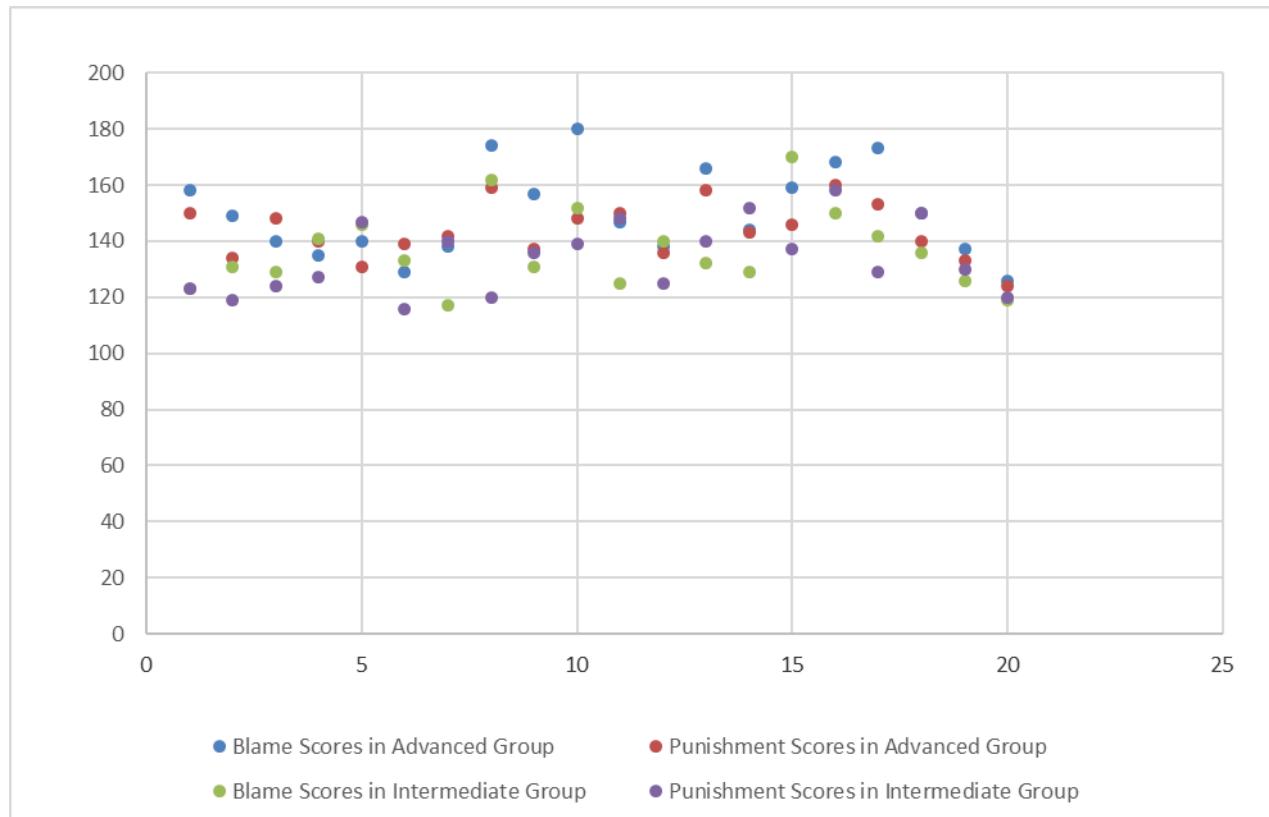


Figure 3. Each learner's punishment and blame scores to Sara's action in each episode of the social event.

The above graph shows overall blame and punishment scores that each learner, in both groups, gave to Sara's action. The x-bar shows the students number while the y-bar indicates their scores. The fluctuation of scores indicates that each learner gave blame and punishment scores to Sara's action based on his/her own understanding of the social event. In addition, the transcripts of learners recorded interaction revealed that changing input (adding or deleting information in episodes) led to change of learners' internalization and externalization in both groups. Although some of their interactions were ungrammatical in standard English, the meaning modification is clearly observable. The space and word limitation made us not include the sample of learners' interactions here.

Independent t-test and paired t-test were employed to detect whether there was a significant difference between the two groups. The level of significance was .05

Table 4. Independent t-test between two groups blame scores.

Group	Mean	S.D.	D.F.	T value	P value	Decision
Advanced	150.4	15.76	38	2.91	0.0059	Sig
Intermediate	136.7	13.88				

The conducted independent t-test proved that the two groups gave significantly different blame score to Sara's action. The Cohen's $d = (150.4 - 136.7)/ 14.84 = 0.92$ confirms the significant difference.

Moreover, independent t-test also employed to compare the two groups punishment scores.

Table 5. Independent t-test between two groups punishment scores.

Group	Mean	S.D.	D.F.	T value	P value	Decision
Advanced	143.55	9.8	38	2.69	0.010	Sig
Intermediate	134	12.49				

The conducted t-test between two groups punishment scores showed that there was a significant difference between the two groups. In other words, the learners' differences in understanding Sara's action led to the calculated difference. The calculated effect size $(143.55 - 134)/ 11.22 = 0.850$ confirmed the difference between the two groups punishment scores.

We also attempted to find out whether there was a relationship between punishment and blame scores with-in each group. Pearson Correlation Coefficient was employed to analyze the scores.

The value of R was 0.75 in advanced group of EFL learners. This shows a strong correlation between blame and punishment scores in the advanced group. The calculated R value in the intermediate group was 0.11 which showed a weak correlation. The following graphs show the calculated Pearson correlation coefficient for the two groups performance.

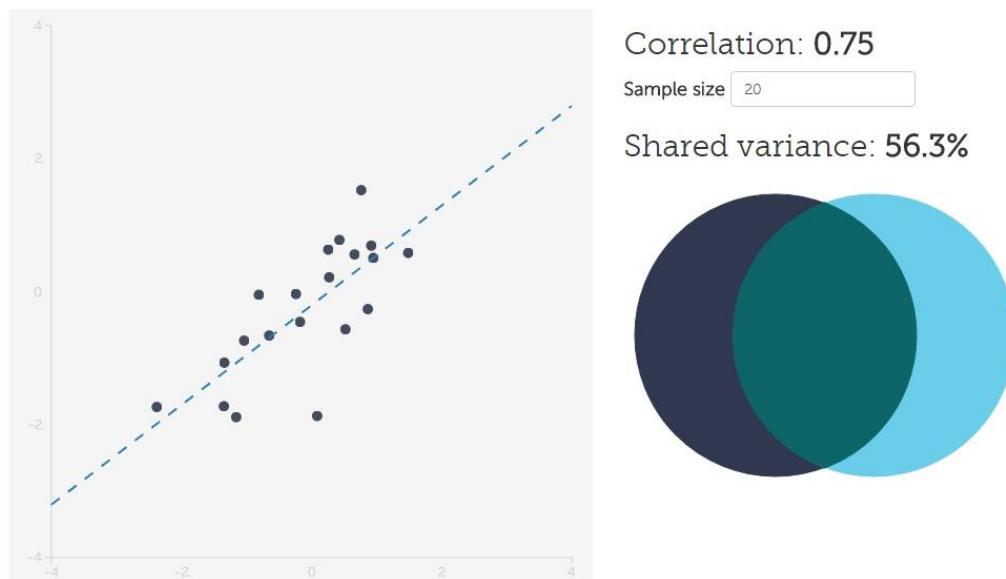


Figure 4. The relationship between blame and punishment score in advanced group

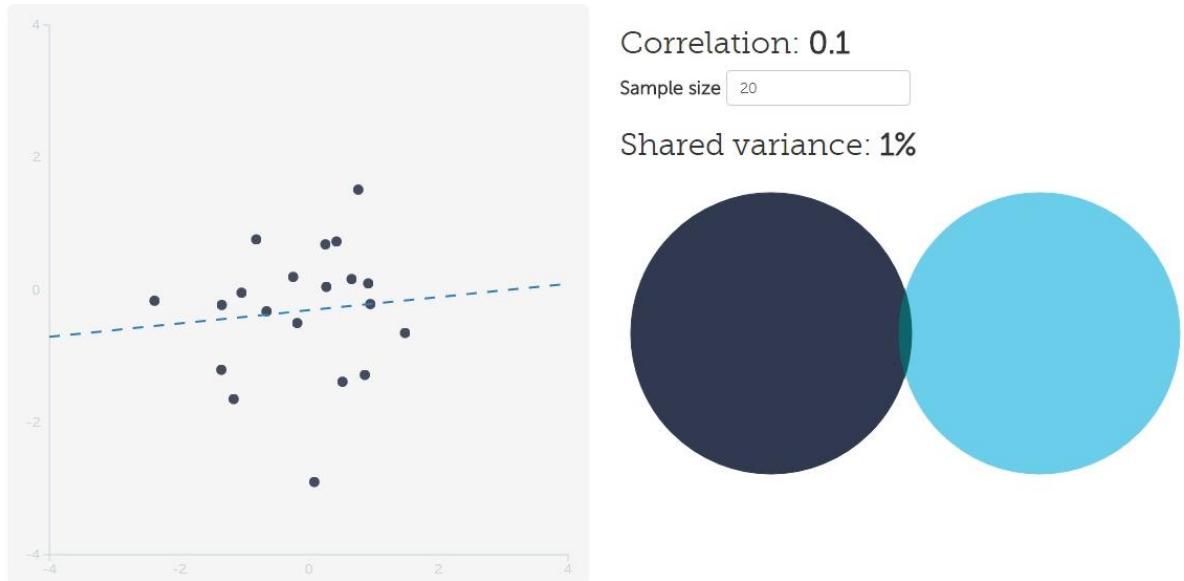


Figure 5. The relationship between blame and punishment score in intermediate group

Response latency

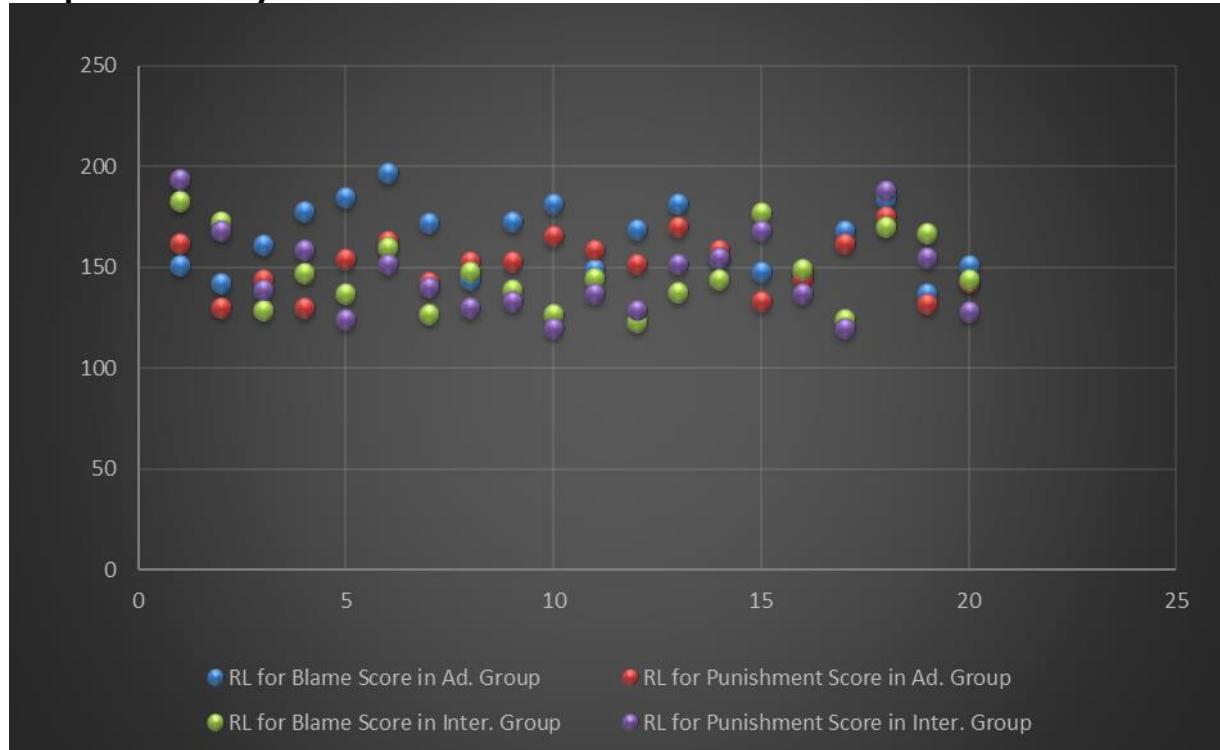


Figure 6. Both groups active response latency in giving blame and punishment scores

Figure 6 indicates that each learner spent specific amount of time to give blame and punishment scores to Sara's action. As we Bakhoda and Shabani (2016) discussed, response latency could be used as a measurement tool to distinguish learners' cognitive ability.

Discussion and Conclusion

The presented electronic social event put focus on the presentation of ongoing English input alongside capturing L2 learners output through both giving score and L2 verbalized interpretation. In contrast with previous sociocultural L2 computerized studies (e.g. Bakhoda and Shabani, 2017; Poehner & Lantolf, 2013) that used computers to offer

mediation and capture learners zone of proximal development, this study employed computers and software to apply back-and-forth constraining to a social event in order to reveal two groups of intermediate and advanced EFL personalized meaning making differences. The software provided the opportunity to detect nuances between the two groups and individuals in personalizing the Sara's social action. Continuous constraining the Sara's action made learners take personal position at the intra-psychological level after reading each L2 electronic episode.

Although at the first glance the difference between the two groups punishment and blame scores to Sara's action might be related to the age difference between the two groups, variation in each individual scores proved that each learner was trailing its own baggage of pre-existing knowledge, beliefs and emotions to internalize the presented L2 social event. According to Frawley (1997), internalization emerges in an "active, nurturing transformation of externals into personally meaningful experience" (p. 95). The electronic designed context allowed learners to express their intra-personal perspective during different episodes of the event.

The three forms of collected data (scoring, verbalization, and response latency) based upon the above-mentioned procedure provided basis to evaluate learners' English responses and their perspective toward accepting or rejecting Sara's action in each episode. The scoring process provided the opportunity to capture all learners' reaction toward the social messages without considering oral English proficiency differences among participants. However, each individual articulated his/her personalized understanding in English about the presented social messages. This research is in line with Ericsson and Simon (1984) and Lawrence and Valsiner (2003) studies and views that brief comments alongside minimal non-verbal responses (such as pushing button) could provide a vivid picture of personal meaning construction.

Intermediate and advanced EFL learners' differences in giving blame and punishment scores to Sara's action proved that EFL learners have a shared understanding of a foreign social event (in this study: 65% of the two groups blame scores overlap or 69% of the two groups punishment scores overlap) up to some point. Simultaneously, each individual EFL learner found his/her own understanding of the social event. The microgenetic modification was even observable in learners' verbalizations when changes in social messages made them to change their previous statements (the lake of space made us delete learners' recorded interactions with the unresponsive computer). The personalization of social messages by EFL learners was more clear when they used pronoun "I" to put themselves in Sara's shoes. From sociologic perspective toward language, this study confirmed the result of conducted studies by Lawrence and Valsiner (2003), Berger (1997), and Lawrence and Dodds (2003). Also, it opens a new window in capturing and analyzing learners' internalization and externalization process.

The transformation of social messages into a learner's intra-psychological plane bear a load on cognitive functioning process. Each learner required a specific amount of time to transform the English social messages into his/her intra-mental level of cognition. The difference in active response latency among the learners while giving score to Sara's action was the result of different inferences that were generated by learners after reading foreign social messages. Therefore, the result of this study substantiates MacNamara and Maglianio's (2009) perspective toward mental representation of a text and its load on cognitive information processing.

On the implication side, the order of back-and-forth constraining of an L2 social event could be used as a framework to assist EFL learners to develop their own understanding of other L2 social phenomena. Haphazard presentation of L2 materials (such as books, songs, videos, etc.) to EFL learners does not engage them in putting themselves in the shoes of the presented character(s) to build their own meaning(s). Moreover, the electronic

presentation of social events could be employed to distinguish learners meticulously based upon their understanding, processing time, and externalization

References

- Bakhoda, I., & Shabani, K. (2016). Response Latency as a Tool to Study L2 Learners' ZPD, ZAD and Ongoing Information Processing. *Asian-Pacific Journal of Second and Foreign Language Education*, 1, 2. doi:10.1186/s40862-016-0009-4.
- Berger, C. (1997). Planning strategic interaction: Attaining goals through communicative action. Mahwah, NJ: Erlbaum.
- Cox, B.D., & Lightfoot, C. (Eds.). (1997). Sociogenetic perspectives on internalization. Mahwah, NJ: Erlbaum.
- Draisma, S., & Dijkstra, W (2004). Response latency and (Para) linguistic expressions as indicators of response error. In S. Presser, J. M. Rothgeb, M. P. Couper, J. T. Lessler, E. Martin, J. Martin, & E. Singer (Eds.), *Methods for testing and evaluating survey questionnaires* (pp. 131–147). New York: Wiley.
- Ericsson, K.A., & Simon, H.A. (1984). Protocol analysis: Verbal reports as data. Cambridge, MA: MIT Press.
- Frawley, W. (1997). Vygotsky and cognitive science: Language and the unification of the social and computational mind Cambridge, MA: Harvard University Press.
- Lantolf, J. P., & Poehner, M. E. (2014). Sociocultural theory and the pedagogical imperative in L2 education. *Vygotskian praxis and the theory/practice divide*. New York: Routledge.
- Lawrence, J.A., & Dodds, A.E. (2003). Goal-directed activities and life-span development. In K. Durkin & J. Valinser (Eds.), *Handbook of developmental psychology* (pp. 517–533). London: Sage.
- Lawrence, J. A., & Valsiner, J. (1993). Conceptual roots of internalization: From transmission to transformation. *Human Development*, 36, 150–167.
- Lawrence, J. A., & Valsiner, J. (2003). Making personal sense: An account of basic internalization and externalization processes. *Theory & Psychology*, 13, 6, 723–752.
- Mayerl, J (2013). Response Latency Measurement in Surveys. Detecting Strong Attitudes and Response Effects. *Survey Methods: Insights from the Field*. <http://surveyinsights.org/?p=1063>.
- McNamara, DS, & Magliano, JP (2009). Towards a comprehensive model of comprehension. In B. Ross (Ed.), *The psychology of learning and motivation* (pp. 284–297). New York: Elsevier.
- Poehner, M. E. (2008). *Dynamic Assessment: A Vygotskian Approach to Understanding and Promoting Second Language Development*. Berlin: Springer.
- Poehner, M.E., & van Compernolle, R.A. (2011). Frames of interaction in dynamic assessment: Developmental diagnoses of second language learning. *Assessment in Education: Principles, Policy and Practice*, 18, 183–198.
- Poehner, M. E., & Lantolf, J. P. (2013). Bringing the ZPD into the equation: Capturing L2 development during computerized dynamic assessment. *Language Teaching Research*, 17(3), 323–342.

Poehner, M.E., Davin, K.J., & Lantolf, J.P. (2017). Dynamic assessment. In E. Shohamy (Ed.), N. Hornberger (Gen. Ed.), Encyclopedia of Language and Education Volume 8, Language Assessment and Testing. Berlin: Springer Publishing.

Valsiner, J. (1998). The guided mind: A sociogenetic approach to personality. Cambridge, MA: Harvard University Press.

Valsiner, J. (2014). An invitation to cultural psychology. Sage Publications, Incorporated.

Valsiner, J., & van der Veer, R. (2000). The social mind: Construction of the idea. Cambridge: Cambridge University Press.

Vygotsky, L.S. (1994). The problem of the cultural development of the child. In. R. Van der Veer and J. Valsiner (Eds.), The Vygotsky Reader. Cambridge, MA: Blackwell.

Vygotsky, L.S. (1978). Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press.

Fidel Çakmak & Gülcen Erçetin*

Alanya Alaaddin Keykubat University, Antalya, Turkey
*Boğaziçi University, Istanbul, Turkey

fidelcakmak@gmail.com - gulcan.ercetin@gmail.com

Metacognitive awareness about listening in self-regulated L2 listening in a mobile environment

Bio data



Fidel Çakmak is assistant professor in the Department of Foreign Language Education at Alanya Alaaddin Keykubat University. She is interested in research topics such as learning and teaching EFL in the digital age, mobile assisted language learning, flipped EFL classrooms, learning analytics, and 21st-century teacher education.



Gülcen Erçetin is professor in the Department of Foreign Language Education at Bogaziçi University. Her research focuses on assessment of literacy skills in first and second language, cognitive processes in second language reading, and second language learning in multimedia/hypermedia environments. Her recent work involves the role of working memory in second language reading.

Abstract

In recent years, L2 strategy researchers have focused on the information reflecting the learning processes through the learners' use of strategies and awareness of using them. Data on metacognitive awareness has been welcomed in L2 listening research context when attention has been devoted to investigate the relationship between verbal or written learners' self-reports of their L2 listening and listening comprehension performance. Research has revealed that effective listeners are distinguished from ineffective listeners in the type, frequency and automaticity of the strategies they use during listening. Although metacognitive knowledge about listening is especially crucial for self-regulated listening, little research exists exploring the role of metacognitive knowledge in self-directed, autonomous listening in a mobile environment. The current study aimed to investigate whether metacognitive awareness about listening was related to text recall and incidental vocabulary learning for learners who were allowed to regulate their listening compared those who were not allowed to do so in mobile-assisted L2 listening? Forty-four learners of English with A2 level proficiency listened to a 13.56-minute-long story on a mobile phone. Half of the student were allowed to regulate the listening task through audio control buttons by going back and forth during listening, while the other half was not given access to the audio control tools; they could only stop or repeat the audio file once. Both groups were allowed to listen to the story twice. Participants were given no specific instructions about the vocabulary tests, they were only told that they were going to listen to a story through mobile phone and then would be asked to write down what they remembered from the text. Before listening, the

learners were administered the Metacognitive Awareness Listening Questionnaire (MALQ) (Vandergrift et al., 2006) to identify students' metacognitive awareness while engaged in L2 listening. Results of the collected data indicate that different types of metacognitive strategies are related to text recall depending on whether the learners are allowed to regulate their listening. On the other hand, no relationship between metacognitive awareness and incidental vocabulary learning was observed. The implication of the current study is that listeners' appraisal of how they have attempted to understand the oral texts in a self-regulated context can assist their metacognitive development in L2 listening. Further exploration of the metacognitive approach of successful L2 listeners can inform the development and personalization of self-directed language learning programs and curricula development in the academic setting.

Conference paper

Introduction

Recent research on listening comprehension has taken learners' self-reports of their understanding and awareness of the L2 listening processes into account. The strategies used by L2 learners for listening comprehension has been of interest in the field of listening research and whether or not listening comprehension is supported by use of metacognitive strategies has been investigated in this respect (Bacon, 1992; Goh, 1998; Vandergrift, 2003). A volume of existing studies has shown that self-awareness of listening strategies can have positive influences on language learners' listening development (e.g., Bolitho et al., 2003; Wilson, 2003). Additionally, research findings suggest that listening comprehension ability is predictable in association with cognitive skills such as problem solving, planning and evaluation, personal knowledge and directed attention (Al-Alwan, Assasfeh & Al-Shboul, 2013); and that listening performance is positively related to learners' overall metacognitive awareness (Goh & Hu, 2014; Dabbagh & Noshadi, 2014; Tavakoli, Shahraki & Rezazadeh, 2012; Zang and Goh, 2006). Also, personal knowledge, problem solving (Goh & Hu, 2014), and planning and evaluation strategies (Dabbagh & Noshadi, 2014) are remarkable indicators of potential L2 listening proficiency. The role of proficiency in strategy use has also been shown in that high-proficient listeners tend to employ problem solving and directed attention whereas less-proficient listeners employ mental translation strategy (Tavakoli, Shahraki & Rezazadeh, 2012).

Current mobile technologies provide flexible interactive multimedia environments that require learners to be autonomous and active. Relatively little research has explored the role of metacognitive awareness in self-directed, autonomous listening in a mobile environment. Weinberg, Knoerr and Vandegrift (2011) found that listeners exposed to podcasts used planning and evaluation strategies, which led to better comprehension. Chang and Chang (2014) showed how learners' involvement in an online videotext self-dictation (video-SDG) activity on the YouTube caption manager platform improved the use of listening strategies by developing their metacognitive listening skills. Lee (2016) also found that metacognitive instruction through peer collaboration in blended learning had a significant impact on the improvement of L2 listening comprehension and overall metacognitive awareness. Antonietti and Combo's (2014) review of studies investigating metacognition and learning in multimedia environments suggests that metacognitive skills can minimize the time required for overall learning and enable learners to focus on the representation of the subject.

It is clear that metacognitive awareness is positively related to listening comprehension. However, it is not clear how self-regulation, which allows learners to control their listening mediates the relationship between metacognitive awareness and listening performance. As such, the current study investigated how learners' metacognitive awareness about listening is related to text recall, incidental vocabulary learning, and

listening duration when they were allowed versus not allowed to regulate their listening in a mobile environment.

Methodology

Participants

The research took place in 2014 in a state university in Turkey where English was not a medium of instruction but a requirement for the programs. A total of 44 students voluntarily participated in the study. They were the registered freshmen students studying Management, Economics and Public Administration in the Faculty of Management and Economics. They had completed one year of English Language Preparatory Program prior to the treatment; however, their level of English language proficiency was found to be elementary (Allen, 1992) at the time of treatment. One of the researchers was the participants' English instructor.

Data Collection

The data collection instruments were the Metacognitive Awareness Listening Questionnaire (MALQ), a free recall task for listening comprehension and a vocabulary test for incidental vocabulary learning. The MALQ was designed by Vandergrift et al. (2006) to measure learners' awareness of L2 listening processes and perceived use of their L2 listening. It is found to be reliable and unidimensional (Ehrich & Henderson, 2018). More explicitly, it was developed and validated for "assessing L2 learners' metacognitive awareness at any point in time of their language development, tracking their metacognitive development in L2 listening at different points of their language learning process, and guiding learners to reflect on their own strategy use and person knowledge" (Vandergrift et al., 2006, p. 431). The questionnaire is composed of 21 items and five categories: problem-solving strategies (making and monitoring inferences), planning and evaluation strategies (preparing for listening and evaluating results of listening efforts), mental translation strategies (finding equivalents in the learners' own language), personal knowledge (perceptions of challenges, anxiety, and self-efficacy) and directed attention strategies (concentrating and staying on task). Each item of the questionnaire is responded to on a six-point Likert scale rating from 1 (strongly disagree) to 6 (strongly agree). The questionnaire was translated into participants' L1 (Turkish).

A free recall task was used to assess listening performance. The participants were asked to write down as much as they could recall from the text in L1 (Turkish) after they finished listening. Participants' performance on the free recall task was assessed based on phonetic parcel units of listening text, following the procedures of Johnson (1970). Performance on the recall task was evaluated based on phonetic parcel units of listening text, following the procedures of Johnson (1970). Specifically, the text was divided into linguistically coherent phonetic parcels according to natural pause locus where a reader/narrator catches a breath often to enhance meaning or to emphasize the text. The participants' written recall protocol was structured to track naturally occurring phonetic parcels. Each parcel unit responds to one as score. The parsing of the protocols into phonetic parcel units was undertaken independently by two different raters; the parcel units were first compared and then checked to measure inter rater reliability, which was found to be 0.93) Discrepancies were resolved in discussion session between the raters.

The vocabulary test consisted of four sub-measures that assessed form and meaning aspects of target words: form recognition, L2 meaning production, L1 meaning production, bilingual synonym match. The form recognition test (Cronbach's alpha = .871) was a checklist that included target words in L2 and a set of distractors. For each test item, participants were exposed to a set of three words and asked to opt for the word they heard in the story. In L2 meaning production test (Cronbach's alpha = .789), which aims to assess the productive knowledge of meaning and form, the participants wrote down the L2 equivalent of the target words provided in L1 while in L1 meaning production (Cronbach's alpha = .807) assessing the receptive knowledge of meaning and

form was the aim and the participants were asked to write down the L1 translation of the target words. The fourth test was a bilingual synonym match test (Cronbach's alpha = .667) in which the students were provided the definitions of the target words in Turkish and were asked to match them with the words in question. In all the tests, the number of the test item was 25 and each correct answer was scored 1 and incomplete or wrong answers 0. A total vocabulary score was obtained by adding the scores of each measure.

Procedures

After technical set up was done, the participants were randomly assigned to two groups: control group ($n=22$) with no self-regulation and experimental group with self-regulation mechanism ($n=22$). Self-regulation in this context means physical flexibility to control listening platform on a mobile application downloaded on a mobile device (Samsung Galaxy Mini GT-S5570). The participants in the experimental group were asked to listen to a narrative text with the choice of listening twice. They could regulate the listening task through audio control buttons by going back and forth during listening. However, the control group was not allowed to regulate the listening task. The listening text involved an audio file that was a 13.56-minute long story taken from the website of Voice of America, an official American broadcast for non-native speakers of English. The participants were provided the earphones to minimize distraction. Before the learning session started, given no specific instructions about the vocabulary tests, they were only told that they were going to listen to a story through mobile phone by using the application and then would be asked to write down what they remembered from the text. When they finished listening, they first completed the free recall task and then the vocabulary tests, which were administered unannounced in a fixed order (form recognition, L2 meaning production, and L1 meaning production, respectively) in order to minimize the possibility of learning the meaning of a given word from the previous test and MALQ. The time allotted for data collection was approximately 80 minutes per condition.

Results

Table 1 provides the descriptive statistics for recall and vocabulary overall and subtest scores as well as the total amount of time the participants spent on the listening task. There were slight differences between groups on all three measures. However, none of the differences were statistically significant. In other words, self-regulation did not facilitate either text recall ($t_{20} = 2.81, p = .22$) or overall vocabulary performance ($t_{20} = 4.77, p = .10$). Nor did it lead to longer task performance ($t_{20} = 0:02:23, p = 08$).

Table 1. Descriptive statistics

Conditions		Mean	SD
Recall	No self-regulation	9.50	7.46
	self-regulation	12.32	7.73
	No self-regulation overall	59.68	8.83
	Form recognition	10.55	3.25
	L2 meaning production	10.77	3.98
	L1 meaning production	14.50	3.99
Vocabulary	Bilingual synonym match	23.86	1.55
	Self-regulation overall	54.91	10.24
	Form recognition	8.82	3.35
	L2 meaning production	10.18	4.03
	L1 meaning production	12.77	4.09
	Bilingual synonym match	23.14	2.66
Listening duration	No self-regulation	0:27:59	0:03:16
	Self-regulation	0:30:23	0:05:34

Table 2 provides the correlations of MALQ scales with text recall, vocabulary and listening duration for the no self-regulation group while Table 3 provides the correlations for the self-regulation group. These correlations show that when learners are not allowed to control the listening process, directed attention is positively related to listening duration. Additionally, the use of directed attention strategies also facilitates text recall. On the other hand, a different picture is observed when learners are allowed to control the listening process. A negative relationship exists between listening duration and directed attention as well as between recall and problem solving.

Table 2. Correlations for the no self-regulation group

	Vocabulary	Recall	Listening duration
Planning & Evaluation	-.220	-.150	.152
Directed Attention	.264	.514*	.444*
Person Knowledge	.005	.226	.061
Mental Translation	-.092	.124	-.184
Problem Solving	.006	-.041	.136

Table 3. Correlations for the self-regulation group

	Vocabulary	Recall	Listening duration
Planning & Evaluation	.114	.019	-.158
Directed Attention	.031	.108	-.440*
Person Knowledge	-.197	.135	.006
Mental Translation	-.067	-.099	.056
Problem Solving	-.051	-.428*	-.010

Discussion

This study aimed to explore whether self-regulation, which allows learners control their listening, affects the relationship between metacognitive awareness and quantitative listening performance. It could be expected that when learners, particularly low proficiency ones, are provided with no self-regulation mechanism on their listening, that they would use directed attention as a primary strategy to improve their comprehension since presumably they need to concentrate hard on the input. The observed positive relationship between directed attention and listening performance has been shown in previous research as well (e.g. Al-Alwan, Assasfeh & Al-Shboul, 2012; Li, 2013; Tavakoli, Shahraki & Rezazadeh, 2012). The correlation between directed attention and time spent on the task suggests that constructing meaning through an inflexible environment can take more time because students, especially low-level students, labor on textual elements more, rather than using compensatory resources and extra-textual elements such as the use of background knowledge. This forced focus on task might very well help them to recall the text better due to enhanced attention to the task. What is surprising is that when listeners were allowed to control their listening, increased use of directed attention resulted in relatively less time spent on task. This may indicate that technical flexibility can enable listeners concentrate on various parts of the text in order to use the new information to confirm their understanding. For instance, they may miss some points or not have understood something, but then might focus on the other more comprehensible incoming parts to compensate for it and infer the meaning of the parts they found confusing, resulting in less time spent on task. The negative correlation between use of problem solving strategies and recall of the text is surprising for this group since previous research has shown that problem-solving facilitates performance. This might be because when listeners are in the search of a solution or compensatory mechanism to repair the comprehension failure they are doing more problem solving than listening, this might leave them unable to construct the whole meaning and to also have impaired recall of the text in general. Also, it should be noted that the self-regulation here was minimal. For example, there was no option to look at the transcript, which is provided on the VOA site and would therefore be considered an authentic component of listening in this context. This study has results contradicting with previous studies (Chang & Chang, 2014; Lai & Gu, 2011) showing that students given technical autonomy to learn at their own pace are presumably able to deploy their listening strategies in a flexible way, which could enable them to be conscious of what they have listened to and to also monitor their own progress with the use of their preferred strategy. Unlike the results of the study by Alwan, Asasfeh & Shboul, (2013) highlighting that the highest performance was associated with use of problem solving; in this study it is found that the more the participants monitor self-inferences of the text by the use of problem solving, surprisingly the less actual recall of the text occurs.

This study has an implication in that it may not be highly crucial to raise the awareness of metacognitive knowledge through metacognitive strategy instruction as most of the existing studies suggest, but rather enabling listeners to use range of strategies that is most beneficial in mobile environment. In the light of this study, the metacognitive awareness for mobile environment should be targeted to make use of technology integration for maximizing learning outcomes. The study supports the need for learner training, and for using strategies specific to the technology-mediated learning environment.

Conclusion

This study has shown that self-regulation is related to metacognitive awareness, listening performance and listening duration. The responses from participants with a low proficiency level indicated that there was no statistically significant difference in the scores of experimental group having self-regulation on their listening and the control group having no self-regulation with respect to recall, incidental vocabulary learning, overall time spent on task completion. This finding presents a potential challenge to the view that technology alone is sufficient to support autonomy. The other result is that forcing learners into using directed attention by not providing self-regulation to manage their individual listening process is positively related to improved comprehension and listening duration. On the other hand, when learners are allowed to control the listening process, a negative relationship exists between listening duration and directed attention as well as between recall and problem solving. This difference is expected since the learners which are self-directing can maximize the efficient use of technology, when they are focused on the task. These listeners may not need to process the input word by word and take less time over all in the mobile environment. The results of this study may be explained by the role of divided attention. The participants with no audio controls were forced into the single task of listening and it is assumed that directed attention to that one task enabled them to better attend to the text and spend most if not all of their time on task actively listening. The second group in contrast did not listen to the text continuously from beginning to the end but was able pause and go back any time. This probably divides their focus between active listening and metacognitive planning for exploiting their use of audio functions. This added flexibility can confound some learners as they switch from maximizing comprehension to maximizing efficient use of time. The lower time spent on task overall includes their metacognitive time and probably indicates that they spent even less time actively listening. From that perspective, the observed performance of the two groups is not surprising. The small number of participants limits this study and further study could be replicated with more participants with different language proficiencies, and different genres of listening texts. It would be interesting to see whether and how the effects of self-regulation on task performance changes with the L2 proficiency of the listener.

References

Al-Alwan, A., Asassfeh, S., & Al-Shaboul, Y. (2013). EFL learners' listening comprehension and awareness of metacognitive strategies: How are they related? *International Education Studies*, 6(9), 31–39.

Allen, D. (1992). Oxford placement test 2 (New edition). Oxford University Press.

Antonietti, A., & Colombo, B. (2014). Learning from multimedia artifacts: The role of metacognition. In A. Antonietti, E. Confalonieri, & A. Marchetti (Eds.), *Reflective thinking in educational settings: A cultural framework* (55-101). New York, Cambridge University Press.

- Bacon, S. (1992). The relationship between gender, comprehension, processing strategies, and cognitive and affective response in second-language listening. *Modern Language Journal*, 76, 160–178.
- Bolitho, R., Carter, R., Hughes, R., Ivanic, R., Masuhara, H., & Tomlinson, B. (2003). Ten questions about language awareness. *ELT Journal*, 57(3), 251–260.
- Chang, C., & Chang, C-K. (2014). Developing students' listening metacognitive strategies using online videotext self-dictation-generation learning activity. *The EuroCALL Review*, 22(1). Retrieved from <https://polipapers.upv.es/index.php/eurocall/article/view/3636/3865>
- Dabbagh A., & Noshadi, M. (2014). Crossing metacognitive strategy awareness in listening performance: An emphasis on language proficiency. *International Journal of Applied Linguistics and English Literature*, 3(6):234–242.
- Ehrich, J. F., & Dunstan, B. H. (2018). Rasch analysis of the Metacognitive Awareness Listening Questionnaire (MALQ), *International Journal of Listening*, 00, 1–13.
- Goh, C. (1998). How learners with different listening abilities use comprehension strategies and tactics. *Language Teaching Research*, 2, 124–147.
- Goh, C., & Hu, G. W. (2014). Exploring the relationship between metacognitive awareness and listening performance with questionnaire data. *Language Awareness*, 23, 255–274.
- Lai, C. & Gu, M. (2011). Self-regulated out-of-class language learning with technology. *Computer Assisted Language Learning*, 21(4), 317–3352–232.
- Lee, J. (2016). The impact of metacognitive instruction in blended learning on L2 listeners' metacognitive awareness and comprehension. *Multimedia-Assisted Language Learning*, 18(4), 70–98.
- Li, W. (2013). A study of metacognitive awareness of non-English majors in L2 Listening. *Journal of Language Teaching and Research*, 4(3), 504–510
- Tavakoli, M., Shahraki, S., & Rezazadeh, M. (2012). The relationship between metacognitive awareness and EFL listening performance: focusing on IELTS higher and lower scorers. *The Journal of Language Teaching and Learning*, 2, 24–37.
- Vandergrift, L. (2003). Orchestrating strategy use: Toward a model of the skilled second language listener. *Language Learning*, 53, 463–496.
- Vandergrift, L. (2006). Second language listening: listening ability or language proficiency? *The Modern Language Journal*, 90, 6–18.
- Vandergrift, L., Goh, C., Mareschal, C., & Tafaghodtari, M. H. (2006). The Metacognitive Awareness Listening Questionnaire (MALQ): Development and validation. *Language Learning*, 56, 431–462.
- Weinber, A., Knoeer, H., & Vandergrift, L. (2011). Creating podcasts for academic listening in French: Student perceptions of enjoyment and usefulness. *CALICO Journal*, 28(3), 588–605.
- Wilson, M. (2003). Discovery listening: Improving perceptual processing. *ELT Journal*, 57, 335–343.

Zhang, S., & Goh, C. (2006). Strategy knowledge and perceived strategy use: Singaporean learners' awareness of listening and speaking strategies. *Language Awareness*, 15, 119–219.

Catherine Caws, Trude Heift*, Marie-Josée Hamel & Mat Schulze*****

University of Victoria, Victoria, Canada

*Simon Fraser University, Burnaby, Canada

**University of Ottawa, Ottawa, Canada

***San Diego State University, San Diego, USA

ccaws@uvic.ca - heift@sfu.ca - marie-josee.Hamel@uottawa.ca - mschulze@sdsu.edu

Revisiting language learning processes through learner data

Bio data



Catherine Caws is Professor of Applied Linguistics in the Department of French at the University of Victoria (Canada). Her research focuses on technology-mediated learning, more particularly on learning design, learner-computer interactions and data-driven learning. She is co-editor of *Language-learner Computer Interactions* (2016, John Benjamins).



Trude Heift is Professor of Linguistics in the Department of Linguistics at Simon Fraser University, Canada. Her research focuses on the design as well as the evaluation of CALL systems with a particular interest in learner-computer interactions and learner language. She is co-editor of *Language Learning & Technology*.



Marie-Josée Hamel is a Professor of Second Language Didactics at the University of Ottawa and holds a research chair in New Technologies and CALL. She has a background in language engineering. Her research interests are in CALL design, learner corpora analysis, and teacher training. She is co-editor of *Language-learner Computer Interactions* (2016, John Benjamins).



Mat Schulze is a professor of German in the Department of European Studies at San Diego State University and the director of the Language Acquisition Resource Center, a national Language Training Center. His current research is situated in tutorial CALL, language learning in online courses, and Concept-based Instruction. He is co-editor of CALICO Journal.

Abstract

Technologies are present in higher education, however, their potential to benefit learners of differing backgrounds, talents, and needs is yet to be fully understood. Why, for example, do some learners thrive in these learning environments, while others fail? What do learners actually do when they engage with digital learning tools as opposed to what they say they do (Fischer 2007; Chun, 2013)? Our recently funded national project seeks to address this knowledge deficit by focusing on the emergent nature of second-language learning through technology-mediated activities.

We examine university student experiences of technology-mediated activities by collecting and analyzing longitudinal learner data thereby providing insight into language-learning processes with the objective to investigate both the potential and limits of adaptive learning.

Conference paper

Introduction

In a technology-mediated environment *adaptive instruction* can generally be defined as the capability of a system to alter its behaviour according to learner needs and other characteristics (Shute & Zapata-Rivera, 2008). A considerable amount of research has long demonstrated that individualized instruction is superior to the uniform approach of one-size-fits-all teaching. For this reason, recent advances in technology and their integration in instructional design have enabled and led to individualization, whereby personalized instruction is offered simultaneously to large groups of learners (Lee & Park, 2008). Yet, despite these joint efforts in technology and education, technology-based adaptive instruction still faces obstacles, mainly in defining the relationship between technology-mediated learning and the learner. The question then arises as to what extent technology needs to adapt to the learner, and the learner to the technology (Vandewaetere, Desmet, & Clarebout, 2011)? In our project, we take a *broad view of adaptive learning*: we consider not only the (pre)programmed adaptation of computational systems (e.g., an intelligent tutoring system and a virtual learning environment), but also the interventions made by teachers and students prior and during technology-mediated learning activities. For example, instructors may adapt instructional sequences and strategies as well as digital, pedagogic, and linguistic affordances to individual students during or between iterations of learning processes, while students can learn to adapt to using appropriate digital affordances (Conole & Dykes, 2004) more effectively.

The literature identifies three major approaches to adaptive instruction. Most relevant to the proposed project is micro-adaptive instruction, which focuses on information processing (Regian & Shute, 1992), diagnoses learners' specific learning needs during instruction, and subsequently, provides appropriate instructional (re-)mediation for these learner needs (Mödritscher, Garcia-Barrios, & Gütl, 2004). Unlike macro-adaptive models, micro-adaptive models are dynamic and more fine-grained, as they include more learner variables such as within-activity measures or temporal learner characteristics to define the most appropriate instructional intervention for a given situation (Lee & Park, 2008). Our premise is that by exploiting affordances of the artefacts and gathering information about learner interactions with a system or within existing electronic learning environments, we can analyze learning processes, and support learners by providing effective adaptive instruction. We adopt an activity-theoretical stance when discussing the conceptualization of affordances in both Human-Computer Interaction and Computer-Assisted Language Learning (CALL) research. Affordances, i.e., intrinsic capacities of an artefact, emerge "in a three-way interaction between actors, their mediational means, and the environments" (Kaptelinin & Nardi 2012, p. 974).

In our proposed work, we investigate technological, pedagogical, and linguistic affordances that enable, facilitate, and sustain adaptive instruction in CALL. The diversity of educational contexts, the wealth of digital technologies, and their successful integration into diverse language education contexts require careful analysis and evaluation (Colpaert, 2006) and motivate the increasing need for empirical studies of the complex interaction of subjects, artefacts, and contexts (Lafford, 2009; Verillon & Rabardel, 1995).

The three main research questions that guide our project are:

- (1) *What are the distinctive patterns in language learner behaviour during technology-mediated language-learning activities?*
- (2) *What are the different learner personas based on the observed patterns in their interactions with technology during language-learning activities?*
- (3) *What is the effectiveness of adapted instruction in technology-mediated language-learning activities based on the previously identified learner personas and observed affordances?*

Theoretical framework

Our research includes a variety of subjects, artefacts, and contexts. Subjects—a term *Activity Theory* (Rubinstein, 1984; Vygotsky, 1978) and Sociocultural Theory (Lantolf & Thorne, 2006) uses for actors—are people involved in the learning process: language learners, instructors, and speakers with whom learners interact. Artefacts mediate between the subject and its object (i.e., the goal of the activity). CALL employs a wide variety of artefacts ranging from software systems, computational tools, Internet resources and Web 2.0 technologies to digital, multimodal texts and text corpora. Contexts include other components of the activity systems through which learning takes place: the community in which learners participate on and off campus, the division of labour in group activities and complex interactions, and the rules of educational institutions and systems such as curricula and assessment.

The *complex adaptive systems* (Larsen-Freeman & Cameron, 2008) of interacting subjects, (digital) artefacts, and learning contexts generate rich data. These empirical data range from LMS-embedded exercises to textual content published in online communities. They provide insight into individual learner trajectories and characteristics of suitable learning artefacts or contexts and their affordances. These data also help us predict learner behavior through analysis of language-learning processes. In computer-mediated communication, learners interact with instructors, other learners, and L1

speakers *via* digital artefacts; in tutorial CALL (Heift & Schulze, 2015), learners interact *with* the technology directly while socially, culturally, and cognitively imbued. In CALL, digital components add to the complexity of language use and second-language learning. This results in increased levels of complexity, but also facilitates the unobtrusive recording of structured process through tracking learner behaviour in online environments and documenting learning outcomes over time, both of which offer windows into the complex processes of technology-mediated language learning.

Since language learning through CALL follows individual nonlinear trajectories, it is unrealistic to predict learning results *a priori*. Instead, after analyzing individual learner trajectories *a posteriori*—by paying close attention to initial conditions, self-similarity at different scales, and growth conditions of developmental change, for example—we seek to identify the various factors that contribute to change in learner behaviour(s). These factors play a key role in our definition of different learner types, or *learner personas*, which will allow us to capture and cluster similarities and differences among learners with the goal to adapt the learning process in areas relevant to individual learners and learning situations. Personas are archetypal users of a learning tool that represent the needs of larger groups of users in terms of their goals and personal characteristics. The usefulness of personas in defining and designing interactive applications is based on ideas advanced by Cooper (1999). As part of his goal-oriented interaction design, which places emphasis on the users' (work) goals such as workflow, contexts and attitudes of the persona, Cooper believes that, in contrast to iterative user prototyping, the most powerful method is to make up “pretend users and design for them” based on in-depth ethnographic data (p. 123). Clearly, it is impossible to capture each and every trait of individual learners. However, by creating distinct personas (Heift, 2007, 2008), we can capture and cluster essential similarities and differences among learners that warrant individualization (see also Levy & Stockwell, 2006) and adaptive instruction.

Once the similarities and differences have been determined, affordances for learner interaction can be adapted in areas relevant and appropriate to a particular digital tool and/or environment (Caws & Hamel, 2013, 2016; Hamel, 2013). Thus, we use the concept of data-driven personas in order to adapt components of complex language-learning processes to the different learner personas that are identified through their long-term interaction with different technological, pedagogical, and linguistic affordances.

Methods

Through an exploration of individual and collaborative language-learning tasks, we seek to examine technology-mediated learning activities in order to identify: (a) patterns of individual learner behaviour and second language learning during technology-mediated activities, (b) learner personas (i.e., learner types), and (c) the effectiveness of technology-mediated affordances for adaptive instruction (e.g., instructional scaffolding) of specific learner personas. We employ a mixed-method approach to answer our research questions by drawing on research into the complexity of technology-mediated language-learning processes (Larsen-Freeman & Cameron, 2008) and using the concept of (qualitative) *retrodictive modeling* (Dörnyei, 2014). We focus on individual learners within their social, cultural, and educational contexts, namely in online and blended learning environments. Data are collected from both social interactions (e.g., social networking sites) and interactions with online tutoring systems. The qualitative and quantitative data are analyzed and then recycled into further iterations of the learning contexts, hence adapting learning and instruction over time.

Data collection starts with the distribution of closed-ended questionnaires in order to obtain comprehensive ethnographic information about learners which can later be analyzed to better personalize and contextualize learning processes. Computer logs are also employed for data analysis of language learner behaviour and learning strategies online. Throughout the study, we then collect digital logs of their interaction with technology (e.g., tracking of system logins, or page views), eye-tracking (e.g., attention

focus and noticing), chat and interaction logs (e.g., written peer-to-peer chats, student-student conversations about language), written learner output (e.g., online posts, essays), and video screen captures of online learning activities (e.g. writing process). Some of these data collection tools, such as computer logs, have been used reliably in CALL research to provide insight into learners' navigation patterns (see Hémard, 2003). Others, such as screen capture videos and eye-tracking are newer ways to record what learners do during learning activities (Blin et al., 2013; O'Rourke, 2012; Smith, 2012).

The analytic methods include several iterations. We analyse participants' responses to questionnaires, interaction transcripts, and learner corpora (i.e. written artefacts produced by learners during activities) by applying discourse analysis methods (identification of patterns and trends). We analyse learner-computer interaction logs to identify strategies (types and frequencies of using a strategy) employed by participants during the technology-mediated activities and correlate those with identified learner variables obtained from the ethnographic questionnaires. The ultimate goal of our analysis is to identify different learner personas with reference to one or more digital, pedagogic, and linguistic affordances in their respective technology-mediated language-learning activities.

Data collection and analysis

Our project is currently in its initial stages during which we focus on 1) fine-tuning the core activities and learning instruments that are part of our investigation in subsequent years, and 2) determining the factors that are taken into consideration when designing adaptive instruction. Together they will allow us to answer our three research questions.

During our pilot studies, we collected samples of learner data from several groups of Canadian L2 learners of French. One extensive set of data was collected from micro-blogging interactions in Twitter over four semesters. As part of their regular A2/B1 level course, participants had to engage in regular micro-blogging activities. Our data collection included both qualitative and quantitative data, namely background information on our learners through questionnaires, reflection and perception questionnaires at beginning, middle and end of semesters, as well as retrospective interviews from a small subset of participants. In addition, we analyzed the microblogs in regards to the linguistic accuracy and complexity, and the types of productions and interactions in which learners were involved (for instance, who are they interacting with and in what way). Initial analysis of the data revealed correlation between the level of morpho-syntactic and lexical accuracy and the types of interactions. In other words when learners interacted directly with their instructors, they put more focus on the form than when they interacted with their peers within the same environment. Moreover, we notice an increase in engagement from learners when the instructors modified their mode of interactions, soliciting more feedback and querying learners in a more direct manner. Further analysis of the data will help us answer our first research question, i.e. to identify specific patterns in language learner behaviour during these specific technology-mediated language-learning activities.

In addition to collecting data from learners of French, we also examine qualitative and quantitative, longitudinal data from corpora of L2 learners of German. These learners range from a beginner to a low intermediate proficiency level. The data were collected from 2003 - 2015 while students engaged in learning activities provided by an Intelligent Language Tutoring System (ILTS) outside class in addition to short texts that beginner students wrote in courses that were taught fully online (2010-2015). As part of the data collection, we elicited background information on our learners (e.g., age, L1, etc.) and conducted retrospective interviews with a small subset of study participants at the end of each semester. During the retrospective interviews, students reflected and commented on their technology-mediated interactions, in particular, with regards to the core activities they performed during their language practice. In contrast to the qualitative data on student demographics and their perceptions of the task and technology, the data collected by the ILTS provide quantitative data on the learners' linguistic complexity, accuracy and fluency

measures for a variety of linguistic skills, mainly vocabulary, grammar, and writing. For a subset of participants, these data sets recorded technology-mediated interactions over four semesters during which the learners progressed from an introductory to low intermediate proficiency level. Our initial data analysis reveals that student interactions with the ILTS change over the course of the four semesters in that the error types shift and students spend a lesser amount on reading the error feedback provided by the system. Access of help options, however, remains fairly identical.

Overall, our quantitative and qualitative data collections from language learners studying different languages and performing different tasks at different proficiency levels allow us to answer the three research questions by correlating student demographics with their linguistic performance along with their perceptions of the technology-mediated tasks they performed. The results will provide insight into the learner profiles that need to be taken into consideration when constructing an adaptive language learning environment.

Conclusion

The impact of analysing learner data with the goal to provide adaptive instruction in technology-mediated activities goes beyond pure language-learning contexts. In particular, we hope that our work will advance knowledge in the wider context of digital literacies within any (higher) education discipline by helping learners understand their skills and limitations regarding the use of information and communication technologies and by preparing them as critical and active members of our knowledge economy.

References

- Blin, F., Caws, C., Hamel, M.-J., Heift, T., Schulze, M. & Smith, B. (2013). Data and elicitation methods in interaction-based research. *Proceedings of WorldCALL 2013*, Glasgow. 21-28.
- Caws, C. and Hamel, M.-J (2016) (Eds). *Learner computer interactions: New insights on CALL theories and applications*. Language studies, Sciences and Engineering. Amsterdam: John Benjamins.
- Caws, C. & Hamel, M.-J. (2013). From analysis to training: recycling interaction data into learning. *OLBI Working Papers*, 5(5), 25-36.
- Chun, D. (2013). Contributions of tracking user behavior to SLA research. In P. Hubbard, M. Schulze, & B. Smith (Eds), *Learner-Computer Interaction in Language Education. A Festschrift in Honor of Robert Fisher* (pp. 256-262). San Marcos, Tx: CALICO.
- Colpaert, J. (2006). Toward an ontological approach in goal-oriented language courseware design and its implications for technology-independent content structuring. *Computer Assisted Language Learning*, 19(2&3), 109-127.
- Cooper, A. (1999). *The inmates are running the asylum: Why high-tech products drive us crazy and how to restore the sanity*, Macmillan Computer Publishing.
- Conole, G. & Dyke, M. (2004). What are the affordances of information and communication technologies? *ALT-J*, 12(2), 113-124.
- Dörnyei, Z. (2014). Researching complex dynamic systems: "Retrodictive qualitative modeling" in the language classroom. *Language Teaching*, 47(1), 80-81.
- Fischer, R. (2007). How do we know what students are actually doing? Monitoring students' behavior in CALL. *Computer Assisted Language Learning*, 20(5), 409-442.
- Hamel, M.-J. (2012). Testing the usability of an online learner dictionary prototype:

process and product oriented analysis. *Computer Assisted Language Learning*, 25(4), 339-365.

Heift, T. (2008). Modeling learner variability in CALL. *Computer-Assisted Language Learning*, 21(4), 305-321.

Heift, T. (2007). Learner personas in CALL. *CALICO*, 25(1), 1-8.

Heift, T. & Schulze, M. (2015). Research timeline: Tutorial CALL. *Language Teaching*, 48(4), 471-490.

Hémard, D. (2003). Language learning online: designing towards user acceptability. In U. Felix (Ed.), *Language Learning Online: Towards Best Practice* (pp. 21-42). Lisse, The Netherlands: Swets & Zeitlinger.

Kaptelinin, V. & Nardi, B. (2012). Affordances in HCI: toward a mediated action perspective. In Proceedings of the 2012 ACM annual conference on human factors in computing Systems (pp. 967-976). Retrieved from <http://dl.acm.org/citation.cfm?id=2208541>

Lafford, B. (2009). Toward an ecological CALL: Update to Garrett (1991). Introduction to the second Focus Issue. Technology in the service of language learning: Update on Garrett (1991) trends and issues, *Modern Language Journal*, 93(s1), Hoboken, NJ: Wiley-Blackwell.

Lantolf, J. P., & Thorne, S. L. (2006). *Sociocultural theory and the genesis of second language development*. Oxford ; New York: Oxford University Press.

Larsen-Freeman, D., & Cameron, L. (2008). *Complex systems and applied linguistics*. Oxford: Oxford University Press.

Lee, J., & Park, O. (2008). Adaptive instructional systems. In J. M. Spector, M. D. Merrill, J. J. G. van Merriënboer, & M. Driscoll (Eds.), *Handbook of research on educational communications and technology* (3rd ed., pp. 469-484). New York, NY: Taylor & Francis.

Levy, M. and Stockwell, G. (2006). *CALL dimensions: Options and issues in computer-assisted language learning*. New York, NY: Lawrence Erlbaum A.

Mödritscher, F., Garcia-Barrios, V. M., & Gütl, C. (2004). The past, the present and the future of adaptive E-learning. An approach within the scope of the research project AdeLE. In Proceedings of ICL, Villach, Austria.

O'Rourke, B. (2012). Using eye tracking to investigate gaze behaviour in synchronous computer-mediated communication for language learning. In M. Dooly & R. O'Dowd (Eds.), *Researching online interaction and exchange in foreign language education: Methods and issues* (pp. 305-341). Frankfurt am Main: Peter Lang.

Park, K., & Kinginger, C. (2010). Writing/thinking in real time: Digital video and corpus query analysis. *Language Learning & Technology*, 14, 31-50.

Regian, J. W., & Shute, V. J. (1992). *Cognitive approaches to automated instruction*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Rubinstein, S. L. (1984). *Grundlagen der allgemeinen Psychologie* (Übersetzung der Originalausgabe Moskau 1946 von H. Hartmann). Berlin: Volk und Wissen.

Shute, V. J., & Zapata-Rivera, D. (2008). Adaptive technologies. In J. M. Spector, M. D. Merrill, J. J. G. van Merriënboer, & M. Driscoll (Eds.), *Handbook of research on*

educational communications and technology (3rd ed., pp. 277–294). New York, NY: Taylor and Francis.

Smith, B. (2012). Eye tracking as a measure of noticing. A study of explicit recasts in SCMC. *Language Learning and Technology*, 16(3), 53-81.

Vandewaetere, M., Desmet, P., Clarebout, G. (2011). The contribution of learner characteristics in the development of computer-based adaptive learning environments. *Computers in Human Behavior*, 27, 118-130.

Verillon, P. and Rabardel, P. (1995). Cognition and artifacts: A contribution to the study of thought in relation to instrumented activity. *European Journal of Psychology of Education*, 10(1), 77-101.

Verspoor, M., De Bot, K., & Lowie, W. (2011). A dynamic approach to second language development: methods and techniques. Amsterdam; Philadelphia: John Benjamins.

Vygotsky, L. S. (1978). Mind and society: The development of higher mental processes. Cambridge, MA: Harvard University Press.

Julie Damron, Jennifer Quinlan

Brigham Young University, Provo, USA

julie_damron@byu.edu - jennifer.quinlan@byu.edu

An exploratory study of student learning and progress in online, blended and face-to-face classes

Bio data



Jennifer Quinlan is an Academic Consultant at Brigham Young University, where she works with faculty to identify strategies and pedagogical approaches in online and blended course development. Her background is in instructional design, international education, and second language acquisition. She is a doctoral candidate in Instructional Psychology and Technology, with an emphasis in Second Language Acquisition; her research focus includes comparative evaluation of online and face-to-face instruction and online language learning.



Julie Damron received her B.A. from Brigham Young University in English, her M.A.T. in TESOL, from The School for International Teaching in Brattleboro, Vermont, and her Ph.D. in Linguistics from Purdue University, in 2000. She is an Associate Professor and Section Head of Korean in the Department of Asian and Near Eastern Languages. Dr. Damron developed and teaches all of BYU's independent study Korean courses and BYU's new "BYU Online" hybrid Korean classes. She is active in the profession with numerous articles, presentations and book publications and just received a national teaching award from UPCEA.

Abstract

Over the past few decades language learning and teaching have been evolving to an approach that emphasizes a more actively involved learner and more technology-enhanced instruction. University students today often have the option of face-to-face, web-facilitated, blended, or fully online classes. Much controversy exists surrounding the effectiveness of online and blended instruction, notably in the context of language learning. Brigham Young University (BYU) faculty conducted an ex post facto exploratory study of first-year Korean courses in three different modes (face-to-face, blended, and online) and compiled a preliminary analysis of student experiences in each course type. This study focused on student scores, time spent with course material, and student feedback.

Conference paper

Introduction

While the majority of higher education students enroll in face-to-face classes and take few online courses, enrollment in online courses is growing (National Center for Educational Statistics, 2014). In the 1997–98 academic year there were approximately 1.08 million students taking undergraduate, online courses (Lewis, Snow, Farris, Levin & Greene, 1999). By the 2006–07 school year, these numbers grew to a record 9.8 million

undergraduate, online enrollments (Parsad & Lewis, 2008). In 2012, 26.4 % of all college students were enrolled in at least one online class or distance education program (U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, 2014). With this current trend towards technology in language teaching and learning, the question of student success within varying modes of instruction, is a question worthy of study.

A large, comprehensive study completed at UC Davis from 2008 to 2012 examined the success rate of more than three million students in nearly sixty thousand courses (of varied subject matter) in California's community college system. Students in online courses showed lower course completion and passing rates, as well as lower occurrence of A and B grades (Hart, Friedmann & Hill, 2016). Many researchers have, likewise, found that students in face-to-face (F2F) courses are generally more successful than their peers in online courses, especially in course grades and course completion (Xu & Jaggars, 2011; Kaupp, 2012; Xu & Jaggars, 2013; Xu & Jaggars, 2014; Johnson & Cuellar Mejia, 2014).

Conversely, research from the US Department of Education (2010) suggests online students perform equally well, if not better than their peers who are in traditional classrooms. They published a report examining 99 quantitative studies comparing student performance in online and classroom courses, which showed online students (doing some or all coursework online) outperformed classroom students.

Research of student success in online versus face-to-face courses is complex, often conflicting, and limited. The same is true in research tied to online and computer-assisted language learning (CALL). Warschauer and Kern (2000) underscore the reality that CALL has matured beyond electronic workbooks; indeed, interventions today may include fully digital and online course materials. In the last decade, researchers like Jonathon Reinhardt, Steven Thorne, Julie Sykes, and Michael Thomas have contributed to contemporary CALL research, yet insights comparing online and face-to-face language instruction are limited. In an effort to contribute to this body of research, we explore and report on the performance of students in three different beginning Korean classes (face-to-face class, blended, and online) at Brigham Young University (BYU).

Research Methodology and Methods

The purpose of an exploratory study is to address a subject about which there is substantial uncertainty in an effort to identify key factors that may inform later research. Exploratory studies often ask, "What are the key factors?" Exploratory studies often have flexible research methods and report on success factors, distinguishing features, and reasons for success or failure. Likewise, ex post facto research looks at what happened and attempts to find relationships and formulate hypotheses. The goal of this research is to study student learning experiences in online, blended, and face-to-face classes through:

1. An examination of student scores (midterm exam, final exam, and course grade), primarily to evaluate written proficiency.
2. An examination of observable time students spend with course material (in class or online).
3. A compilation of end-of-semester student evaluations of the class and the teacher (face-to-face, blended, and online).

Procedures and Class Structure

Each of the three course versions was structured according to Allen and Seaman's Blended Learning Model Definitions (2012), thus ensuring the traditional classroom had no significant or required online instruction, the blended course had 30-79% of content/instruction online, and the online course had 80-100% of the course content online.

The learning outcomes were the same for each course:

1. Read (with limited comprehension) and write proficiently.
2. Discuss topics such as family, school, months of the year, hobbies, vacation plans.
3. Interact linguistically on a limited basis using middle and high language.

Each course format had a specific number of days of instruction, pacing, online resources available to students, assessment format, and student support (see Table 1).

Table 1. Course Format

Format	Face-to-Face (F2F)	Blended	Online
Days of Prof. instruction	T/TH	Tues	N/A
Days of teaching assistant (TA) instruction	MWF	MWF	Online meetings with TA (roughly weekly)
Pacing (complete course)	16 weeks (1 chapter/2 weeks)	16 weeks (1 chapter/2 weeks)	One year (self-paced)
Online resources	None	Pre-recorded lectures and media presentations required	Pre-recorded lectures and media presentations required
Assessment format	In-class assignments, quizzes, tests, midterm and final exam	Online assignments, quizzes, and tests; in-class midterm and final	Online assignments, quizzes, and tests; proctored final online
Interaction	In-class interaction*	In-class interaction*	Online interaction*
Office hours	Optional	Optional	Optional
Speaking appointments	In-class (optional)	Online (required)	Online (required)
Other support	In-class assistance	Online conversation café for oral practice	Online conversation café for oral practice

*Interaction with peers, TAs, and/or professor.

The *face-to-face* course met together five days a week for fifty minutes. The professor taught grammar on Tuesdays and Thursdays, and the teaching assistant (TA) conducted review sessions on Mondays, Wednesdays, and Fridays. All quizzes and tests, including the final exam, were taken in the classroom. There was no required online interaction. TAs held weekly office hours, which were optional for students.

The *blended* course met together four days a week for fifty minutes. The professor taught grammar on Tuesdays, and the TAs conducted review sessions on Mondays, Wednesdays, and Fridays. On Thursdays, students in the class worked online, on their own, utilizing a flipped-classroom model¹⁰. Students logged into the online portion of the course and listened to pre-recorded lectures that accompanied the same PowerPoint slides that were used in the face-to-face class. The chapter quizzes and tests were administered online and were unproctored. The final exam was held in the classroom (proctored). Students in the blended course utilized the learning management system

¹⁰ The flipped classroom approach does not comprise a single model, but rather a core idea to flip the lecture-based classroom instruction and utilize prerecorded videos and reading assignments in advance of class (Tucker, 2012). Class time is then used to engage learners in problem-based, collaborative learning and advancing concepts (Bates et al, 2016).

(LMS) to access grades and leave feedback, take quizzes and tests, view pre-recorded lectures, and chat with the TA.

The *online* courses were asynchronous and required no in-person meetings; however, students did meet online with the TA or professor approximately once a week. TA or professor interactions included speaking appointments, attending office hours, or entering a conversation café. In the online course, students listened to pre-recorded lectures and completed all gradeable work online. The final exam was a written, proctored exam administered in a testing center. The LMS hosted all lecture slides, chapter tests and quizzes, other assignments, and student grades. Additional tools were used for scheduling and conducting speaking appointments online.

We examined total student minutes spent online among all three course types. We correlated the minutes online to the student's final grade. We also compared the amount of observable time (online or in the classroom) spent with class material. Finally, we examined end-of-semester student evaluations of the course and the instructor.

Participant & Instructor/TA Profiles

All three courses were supported by the same professor, though the TAs varied from campus to online classes. TA's all received the same training for supporting the courses. Participants were enrolled in one of three beginning Korean classes at BYU (face-to-face, online, and blended). At the start of the semester, students enrolled in Korean 101 *on campus* (face-to-face or blended) were given the option of participating in either section of the course. Details regarding meeting times and online coursework were shared with students. Of the students who took the *online* course, 12% were BYU students and 88% were students from other universities, some in Utah and some from other states. Student demographic information is in Table 2.

Table 2. Student Enrollment Demographic Information

	Face-to-Face	Blended	Online
Sample size	30	37	29
M	17	15	11
F	13	22	18
Freshman	9	12	Non-disclosed
Sophomore	7	11	
Junior	4	5	
Senior	10	9*	
Heritage background	5	5	Unknown

*2 graduate students

Student data was compiled from the Learning Management System, end of course survey responses, and customer support database (CRM software). All statistical analysis controlled for the variable of heritage speaker/prior Korean experience. Student data was evaluated using descriptive and inferential statistics, noting ex-post facto study criteria (groups were considered to be generally equivalent on variables other than the course delivery type, such as age, intent to enroll, full-time status, etc.).

Language Assessment

An informal language assessment took place at the beginning of the face-to-face and blended courses, administered by the professor, with the intent to ensure that all students in the face-to-face and blended courses were true beginners. No reading or writing knowledge was assessed. If their proficiency was above a novice low, the student was moved to an appropriate-level course.

For the online students, a pre-test was administered at the beginning of the online course; however, it was not compulsory. In the pre-test, students self-reported prior

Korean language ability (none indicated previous experience). Due to this being self-reported, the variable was controlled for in the results. Students testing above a zero or novice low were recommended to transfer to a higher-level course.

Materials

All three courses were based on the same textbook, *Integrated Korean: Beginning 1*, published by Klear Textbooks. In all three courses, the professor and TAs taught grammar using the PowerPoint slides that accompany the *Integrated Korean* series.

In the blended and face-to-face courses, teachers provided additional support materials to students in response to specific student needs. Additional support materials were not included in a systematic way in the online course.

Student assessment and assignment materials were equivalent among the three delivery platforms. Instructional materials were available online to blended and online students but not to F2F students. Course policies also varied slightly: the midterm was proctored in the blended and F2F courses but not in the online course. Final exam was proctored in all three courses.

Assessments used in tabulated data for RQ1 included midterm, final exam, and final course grade. The written midterm and final exam included limited response items (e.g. fill in the blank) and constructed response items (e.g. short answer/essay).

The grading scale for all sections of the course was broken down as follows: 100-94% (A), 93-90% (A-), 89-87% (B+), 86-84% (B), 83-80% (B-), 79-77% (C+), 76-74% (C), 73-70% (C-), 69-67% (D+), 66-64% (D), 63-60% (D-), 59% or below (E/Fail). This is the scale used to tabulate results for RQ2 (course GPA, or final course grade).

Data Analysis

The purpose of this exploratory study was to get a glimpse into student experiences in three different types of Korean language classrooms. Because it is ex post facto research, we can look at frequencies, variance, and correlation to identify relationships between variables, but we do not attempt to identify cause and effect. A summary of student experiences across the three different classes follows.

We examined student scores in each class (see Table 3) and found the overall final course grade in all classes to be similar. In all cases the final exam grades dropped from the midterm grade, with the most significant drop evident in the online class. This may be a reflection of a non-proctored midterm exam and a proctored final exam online, as the face-to-face and blended classes have proctored midterm and final exams.

Table 3.0 Mean Scores

	Face-to-face	Blended	Online
Mean midterm grade	95%	97%	95%
Mean final exam grade	82%	79.8%	82%
Mean overall course grade	93.5%	93.6%	92.6%

An analysis of variance revealed that there was not a statistically significant difference in student results of midterm, final exam and overall course grade when considered in light of each mode of course delivery (F2F, blended, online).

We also examined observable time students spent with class material in all three courses types. Students spent approximately 75 observable hours in the F2F class. Blended students spent approximately 63 hours in class and online. Online students logged

approximately 44 hours and 36 minutes with course material. Correlation of time spent with material to end of course grade was weak in the online and F2F; blended data showed a moderately strong positive correlation ($r=.58$). See Figure 1.

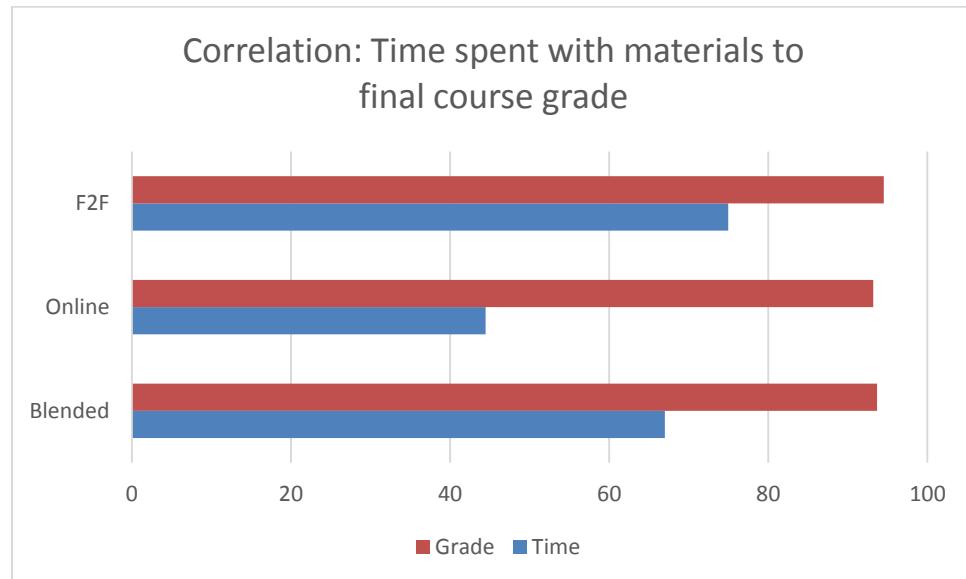


Figure 1. Total Time and Grade Correlation

We emphasize observable time spent with material, as it is difficult to know how much of the time students are actually *engaged* with the material. This leads us to consider two primary factors when measuring “observable time spent with course material”: 1) students may spend considerable time outside of class or outside of the online course studying and increasing in proficiency; 2) a student can be logged in online or present in class but not *actively engaged* with the content.

Course and Faculty Evaluations

We compiled end of semester evaluations to understand student perspectives of strengths and weaknesses of each class format. Student evaluations were slightly lower for online and blended classes (see Table 4). Throughout the semester in the blended courses, the faculty member asked students if they wanted to have a fifth day of face-to-face instruction for extra review or in-person work. Student response was no each time. However, in end-of-course evaluations, students indicated they wanted more interaction with their professor.

Table 4. Student Ratings

	101 Online	101 Blended	101 F2F	102 Online	102 Blended	102 F2F
Course	8.9	8.8	9.1	8.0	8.7	9.3
Teacher	6.9	8.3	9.0	7.0	8.9	9.4

The instrument for these courses used a scale of 10

There was positive and negative feedback regarding each of the sections. While some students may feel more comfortable with the familiarity of face-to-face instruction, evaluations reflected that students valued the time/place flexibility offered by the blended and online sections. Although they seemed to seek more in-person teacher interaction (reflected in end-of-course survey data), which is clearly part of F2F classes, they also valued the ability to revisit course material online at their convenience. For example, blended students revisited course material on average twice as many times as it was presented in the F2F class (F2F students did not have access to course materials online). Finally, while there were some technical glitches in the course that received

negative feedback, students gave positive feedback regarding the ease and convenience of taking quizzes online.

Summary

This study provides much-needed exploratory data regarding student learning in online, blended, and face-to-face language instruction. Course delivery type did not seem to have a relationship to final course grades; grades were similar across course types. Results did show some relationship between time spent with course material and final course grade, but this is cannot prove cause and effect. The course ratings were very similar across all three modes and revealed strengths and weaknesses of each course type.

Observations and Hypotheses

Because this was an ex post facto exploratory study, we drew general observations and preliminary correlations. For instance, exam scores in the online course dropped significantly from midterm to final when they were taken in a proctored environment. However, traditional and blended final exam scores were also lower than midterm scores. We could hypothesize making the final exam proctored in the online course (where midterm was unproctored) may have prevented students from accessing course material and resulted in lower scores. However, this does not consider the similar, though less significant, dip in final exam grades for the traditional and blended courses. Thus, we hypothesize there is a relationship between proctoring and student exam scores; future research could examine this relationship as well as any disparity between formative and summative assessment scores.

In terms of student evaluations, it is difficult to assess the effectiveness of interaction based solely on student reactions. We observed conflicting responses from students during the semester versus in the end-of-course survey. Students may not be aware themselves of what they prefer or do not prefer, or their feelings about these preferences may not be static. We hypothesize that the nature of the end of course evaluation may influence student responses, because it asks several questions directly tied to the instructor and the instructor's involvements.

Finally, in analyzing time spent with course material via activity logs and assignment submissions, we discovered online students were binge studying or accessing significant amounts of course material immediately prior to traditional semester deadlines. Further research could explore effect of implementing deadlines to direct online student pacing.

Conclusion

We anticipated that student scores in the blended and online courses would not be as high as those in the F2F classroom. However, we observed little difference. Also, students in all three course types achieved the stated learning outcomes. We observed some course elements that may relate to student success, such as unlimited access to course materials (online and blended), TA support, responsiveness of TA and instructor to student needs and technical issues, and consistency of course elements. Further research could explore the ways in which students access and use online material, as well as how course type might impact oral versus written proficiency.

References

- Allen, I. E. & Seaman, J. (2013). Changing course: Ten years of tracking online education in the United States. Retrieved from
<http://www.onlinelearningsurvey.com/reports/changingcourse.pdf>

Bates, J. E., Almekdash, H., & Gilchrest-Dunnam, M. J. (2016). The flipped classroom: A brief, brief history. *The Flipped College Classroom*, 3-10. doi: 10.1008/978-3-319-41855-1_1

Bowles, M. et al (Eds.). (2008). Selected Proceedings of the 2007 Second Language Research Forum: Observed learner behavior, reported use, and evaluation of a website for learning Spanish pragmatics (pp. 144-157). Somerville, MA: Cascadilla Proceedings Project.

Bruner, J.S. (1966). Toward a theory of instruction. Cambridge, Mass: Harvard University Press.

Cho, Y. M. (2010). Integrated Korean: Beginning 1. Honolulu, HI: University of Hawaii Press.

Gagné, R. M., & Briggs, L. J. (1979). Principles of instructional design (2nd ed.). New York, NY: Holt, Rinehart and Winston.

Gagné, R. M., & Dick, W. (1983). Instructional psychology. *Annual Review of Psychology*, 34(1), 261-295.

Hadley, A. O. (2007). Teaching language in context (3rd ed.). Boston, MA: Thomson.

Hart, C. M., Friedmann, E., & Hill, M. (2016). Online course-taking and student outcomes in California community colleges. *Education Finance and Policy*, 1-30.
doi:10.1162/edfp_a_00218

Horn, M. & Staker, H. (2014). Blended: Using disruptive innovation to improve schools. San Francisco, CA: Jossey-Bass.

Johnson, H., & Cuellar Mejia, M. (2014). Online learning and student outcomes in California's community colleges. San Francisco, CA: Public Policy Institute of California.

Kaupp, R. (2012). Online penalty: The impact of online instruction on the Latino-White achievement gap. *Journal of Applied Research in the Community College*, 19(2), 8-16.

Lewis, L., Snow, K., Farris, E., Levin, D., & Greene, B. (1999). Distance education at postsecondary education institutions: 1997-98. Washington, DC: National Center for Education Statistics, US Department of Education.

Parsad, B., & Lewis, L. (2008). Distance education at degree-granting postsecondary institutions: 2006-07. Washington, DC: National Center for Education Statistics, Institute of Education Sciences.

Swain, M. (1998). Focus on form through conscious reflection. In C. Doughty and J. Williams (Eds.), *Focus on Form in Classroom Second Language Acquisition* (pp. 64-81). Cambridge, England: Cambridge University Press.

U.S. Department of Education, National Center for Educational Statistics, Integrated Postsecondary Education Data System (IPEDS). (2014). Digest of Education Statistics (2013-2014 enrollment component). Retrieved from
https://nces.ed.gov/programs/digest/d14/tables/dt14_311.15.asp

U.S. Department of Education, Office of Planning, Evaluation, and Policy Development. (2009). *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies*. Washington, D.C.: ED Pubs.

Vygotsky, L. S., Cole, M., Stein, S., & Sekula, A. (1978). *Mind in society: the development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Warschauer, M., & Kern, R. (2005). Network-based language teaching: Concepts and practice. Cambridge, UK: Cambridge University Press.

Xu, D., & Jaggars, S. (2011). The Effectiveness of distance education across Virginia's community colleges: Evidence from introductory college-level math and English courses. *Educational Evaluation and Policy Analysis*, 33(3), 360–377.

Xu, D., & Jaggars, S. (2013). The impact of online learning on students' course outcomes: Evidence from a large community and technical college system. *Economics of Education Review*, 3, 46–57.

Xu, D., & Jaggars, S. (2014). Performance gaps between online and face-to-face courses: Differences across types of students and academic subject areas. *Journal of Higher Education*, 85(5), 633–659.

Richard Hill Davis, Yu Chi Wang & Chan-Chia Hsu*

Feng Chia University, Taichung, Taiwan

*National Taipei University of Business, Taipei, Taiwan

rhdavis@fcu.edu.tw - pittchichi@gmail.com - chanchiah@gmail.com

Starting small: looking at argumentation in the Feng Chia Learner Corpus

Bio data



Richard Hill Davis is Assistant Professor in the Language Center at Feng Chia University. A graduate of American University, his MA is from National Kaohsiung Normal University and his PhD is from University of Glasgow. His research is in applied linguistics, corpus linguistics and EMI; his most recent publications and presentations are on medical discourse and learner corpora.



Yu-Chi Wang is Assistant Professor in the Foreign Language Center at Feng Chia University in Taiwan. She received her doctoral degree from the Foreign Language and ESL Education program at the University of Iowa and her master's degree from University of Pittsburgh. Her research interests are TESOL and applied linguistics. Her recent publication and presentations are on learner's identity and EFL learners.



Chan-Chia Hsu is Assistant Professor at National Taipei University of Business. He received his PhD from National Taiwan University. His research interests include corpus linguistics, lexical semantics, and cognitive linguistics. He has published papers in *Corpora*, *Corpus Linguistics and Linguistic Theory*, *Language and Linguistics*, and *Language Sciences*.

Abstract

The Feng Chia Learner Corpus consists of timed extemporaneous written English compositions arguing whether students should take a gap year or enter university upon high school graduation. Open to all Language Centre faculty, it was collected in 2017 at Feng Chia University in central Taiwan from 836 (of roughly 4060) entry-level students to give faculty and students a snapshot of what language competencies entry-level English learners bring to the campus; how they express their thoughts; and as a resource for faculty to develop learning-driven materials and curricular planning. Writings, other than those by Levels 3 and 4, were shorter than we anticipated, but do present an opening statement with some development emphasizing causation; new classroom emphases on corpus-based collocation, lexical bundles and interactive metadiscourse are envisioned.

Conference paper

Background

If Hirvela is right, that "argumentation is at the heart of SL writing assessment" (2017:69) such as that required by TOEFL or IELTS, then we need to learn more about the instructional materials and techniques our first-year L2 learners receive before we meet

them, more about what they take away from those materials, which should help us think about what we might develop to expand their skills. The purpose of this study is to identify components of argumentative or persuasive writing prior to enrollment in mandated first-year English classes, keyed to the

The Feng Chia Learner Corpus was compiled in fall 2017 from volunteer first-year students. It is currently open to all faculty in the Language Centre for materials development, and intended to become web-available beyond the campus to support data-driven pedagogy. It is a small collection, intended to offer a snapshot of what Feng Chia's entry-level first-year students in 2017 brought with them to their campus courses in English by way of understanding how to voice an opinion or justify a claim. Feng Chia University in central Taiwan offers undergraduate and graduate degrees, including fourteen PhD programs, to its roughly 20,000 students. Classes in its Language Centre are required of all entry-level first-year students, and are taught in English. The required entrance examination scores for entering first-year students place them in one of four proficiency levels, with Level 1 being the lowest. Almost all of these students – 98% -- had just graduated from high school in 2017, and were thus some of the first students who had studied English since elementary school, typically for six years, exclusive of after-school tutoring.

Related Literature: Argumentation in Learner English

Lam et al (2018: 97-98) assert that only a few studies have examined how to teach students to write argumentation, whether they analyze writings for "claim, counterclaim, rebuttal and supporting data" or the Toulminian approach incorporating "evidence, claim, warrant, backing and rebuttal." Rusfandi (2015) compared arguments written in Indonesian and in English, finding that Indonesian learners focused in both languages on justifying their main claim as opposed to presenting counter arguments. Hasselgård (2009:121) reports that while Norwegian EFL students were able to handle grammatical issues, they had problems with "discourse conventions of argumentative and academic writing in English." However, discourse conventions were not as problematic in the study by Chien comparing discourse organization in both Chinese and English writing by 216 senior high students, which is when students in Taiwan begin to write compositions in English (2011:421). Students studied by Chien typically presented an introduction, a developmental paragraph and a conclusion. The majority used a "direct" approach in both languages (p. 424), in which a thesis statement preceded any support (as opposed to appearing as a conclusion, for example: see Kirkpatrick and Xu's distinction between "top-down and bottom-up persuasion"(2012:203)). However, presenting a thesis statement or justifying the main claim may not be sufficient for the kinds of assessment L2 students must often undergo. As Qin and Karabacak (2010: 445) note in their study of second-year writing students in China, we need more research on

questions such as whether in an L2 argumentative paper, a clear position is presented; what types of reasons are provided to support a position; whether any opposing point of view is offered and furthermore refuted.

Qin and Uccelli (2016:2) report that while empirical analyses show that argument as a genre develops in L1 middle and high school writers after narrative or procedural writing there is very little on secondary-school EFL writing; Accordingly, they reviewed writings by 100 students from East China in grades 6-11 and whose proficiency level was B1.1-B2.2 on the Common European Framework (pp. 6-7), and examined a number of components including metadiscourse and stance markers (p. 8): frame markers, code glosses, transition and conclusion markers, as well as deontic and epistemic markers.

Methods

In the third week of the fall 2017 semester, 836 of roughly 4060 entry-level students at Feng Chia, or approximately 20.6%, consented to compose digitally, save, and email to their supervising First-Year English instructors volunteering for the project from the Feng Chia Language Center, an extemporaneous argumentative essay on this prompt:

Some people think that students should immediately start university once they graduate from high school, while others think students should take a gap year, or work for a year between high school and university. Which do you think is better, and why?

The essay was timed at 45 minutes, commensurate with standardized exams such as TOEIC. Students did not drop out although 9 did not finish. Each entry was read by two linguists and coded for transition, conclusion, and frame markers, number of sentences, lexical profile, using *VocabProfil* (<http://www.lextutor.ca/vp/eng/>) and a sample of the first 25 adjectives in each level to approximate CEFR (Common English Framework of Reference for Languages) level. Adjectives were identified by hand and cross-checked by computer-assisted coding in Wmatrix®, and run through Cambridge's *English Language Profile* (<http://vocabularypreview.englishprofile.org/staticfiles/help.html#Introducing>).

Results

A research assistant annotated the number of words in each writing and number of years each student reported taking English either in school or cram school or both, and entered names and data into a 4-section database divided by student placement into one of the 4 levels from their entrance exams.

Table 1: Selected information from student entries

Level/ CEFR	Number of Students	Total number of words	Average number of words	Average years reported for taking English
1 /A2	151	6706	44.4	9.5
2/A2~B1	197	13209	67.1	9.2
3/B1	374	35001	93.6	9.8
4/B1~B2	114	13681	120	9.9

Not surprisingly, since 98% of first-year students had just graduated from high school, their lexical profile showed them using almost exclusively words from the 1000 most used words in English (Laufer and Nation 1995), suggesting their basic level of vocabulary richness. Level 4 is the highest-scoring group of entry-level students at Feng Chia University; they comprise six per cent of entering students and typically seek majors in the sciences, technology, and business rather than language. When we searched Level 4's 244 adjectives, we found that Level 4 students vary between CEFR B1 and B2, with occasional words at C1.

Table 2. Selected adjectives in Level 4 by predominant CEFR Levels

	K1 55.4% CEFR A1,A2	K2 15.6% CEFR B1	AWL 13.8% CEFR B2	Off-list 15% [few CEFR words]
Examples	native, unseen, remarkable	correct, afraid, complicated	appropriate, beneficial	diligent, focal, sophisticated

Students varied considerably by level in producing details, due partly to less-than-robust lexicon. We would assume that Levels 1 and 2 would enter as competent with CEFR Level A2 (short, simple notes, messages, emails and personal letters) although moving toward B1, and that Level 3 would be at B1, moving to B2 (essays, reports, letters, arguments) to join Level 4. Table 3 shows a tabulation of keywords, or words in a corpus of unusual frequency compared with a reference corpus (here, the British National Sampler Written, included in Wmatrix®) to suggest differentiation among levels. For example, only Level 1, the least proficient, chose to "agree" with the question posed in the prompt as opposed to making a choice, and had the fewest keywords; Level 3 clearly had *opinions* about *horizons* that could be *enriched personally and professionally by travel*.

Table 3. Keywords identified by Wmatrix® and arrayed by level (L) containing them

Keyword	L 1	L 2	L 3	L 4	Keyword	L 1	L 2	L 3	L 4
abroad	✓		✓	✓	boring		✓		
student	✓	✓	✓		professional			✓	✓
immediate	✓	✓	✓	✓	enrich			✓	
learn	✓	✓	✓	✓	horizon			✓	✓
experience	✓	✓	✓		travel			✓	
college	✓				best			✓	
agree	✓				opinion			✓	
mature		✓	✓		relax			✓	
future		✓		✓	study			✓	
skill		✓		✓	situate				✓
latter		✓			broad				✓

Details in the entries, particularly as the entries had a greater number of sentences (see Figure 1) were given primarily by adjectives. While adjectives invite classwork with collocation, light verbs also warrant investigation and perhaps even translation exercises. A consistent majority use the light verb *make* as part of a causative construction: *make X + (to) V*, 'because it can *make us* getting more knowlage' (Level 1; see Altenberg and Granger 2001). It is the usage across the four levels for *therefore* and especially for that small word so that may be the most intriguing for further rhetorical investigation because it suggests stages of justifications, echoes of if-then constructions, and the possible shadow of a third turn.

This latter suggests some carryover from traditional Chinese argumentation styles,

although we found that the writings were, with the exception of level 4 and a handful of level 3, far too short for confidence in making any comments about cross-cultural rhetoric. Number of sentences per level apparently substantiates our entrance placement into 4 writing levels; they increased in length as vocabulary expanded, particularly as the sentences included formulaic expressions (e.g. 'in my opinion').

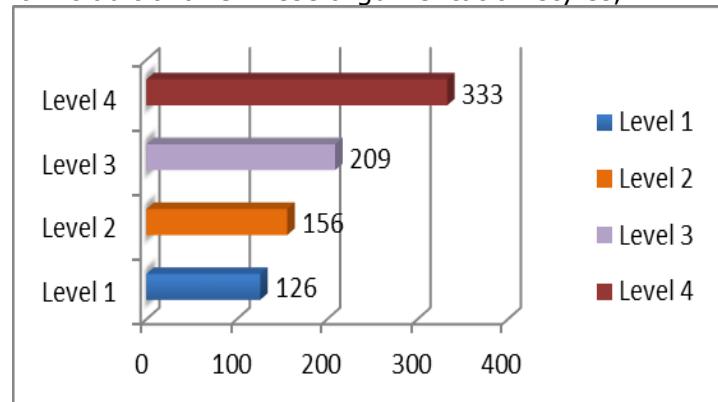


Figure 1: Number of Sentences Across Four Levels

Discussion

We looked closely at eighteen metadiscourse markers, grouping them as follows. Transition markers are considered by Hyland (2005) to be interactive metadiscourse; the others are interactional. We distinguish between *disclosure* and *considered responsibility* as they suggest formulaic phrases designed to promote the writer's thoughtfulness.

Because [since, therefore, thus, so-suggesting a reason, so-suggesting time, in addition], or transition markers (Hyland 2005:220);

Progression [first, second, next, after all], or frame markers (Hyland 2005:219);

Countering [if, but, however], or transition markers (Hyland 2005:220);

Disclosure [I think, some think], or boosters with self/other mentions (Hyland 2005:222);

Considered Responsibility for Opinions [so I think, therefore I think, in my opinion], or boosters combined with self-mentions (Hyland 2005:222).

Figure 2 displays the aggregate usage by marker categories throughout the corpus.

First-year learners at Feng Chia nearly unanimously began their response with a sentence echoing the prompt: they had internalized the importance of beginning their argument with a claim keyed to choosing between a gap year and entering university. We were especially interested in if and how they were able to develop the claim beyond a simple statement of causation, how they were able to build and string clauses, and what they used to develop cohesion and coherence.

Nearly all the learners used *because*, the conversation-like marker for development, (Biber et al. 2011; Mo 2015) to introduce their first - and in level 1 writing, their only justification for their choice. We found that all four levels used *because* and *so; therefore* and *since* were typically used for development only by levels 3 and 4. Only three students presented any kind of counter-argument; they were all in Group 4. All 4 levels followed *because* with a rationale for their choice, typically using first person *I* to head a clause, usually *I think/I know/I feel/ or I can improve~expand~learn*

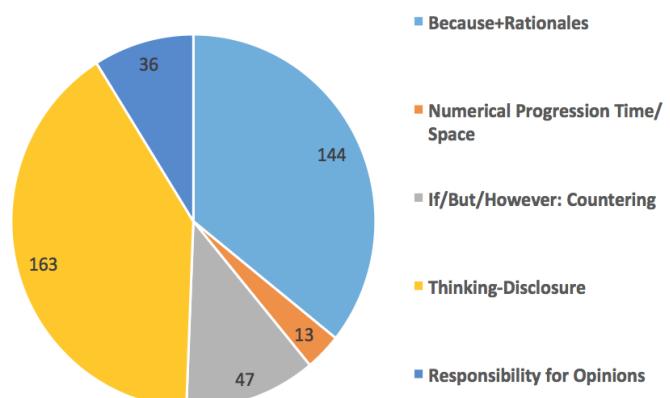


Figure 2: Persuasive Utterances

Beyond *I*-clauses, students constructed rationales with different amounts of fluency by level. Level 1 had the greatest trouble constructing a subject for the following clause.

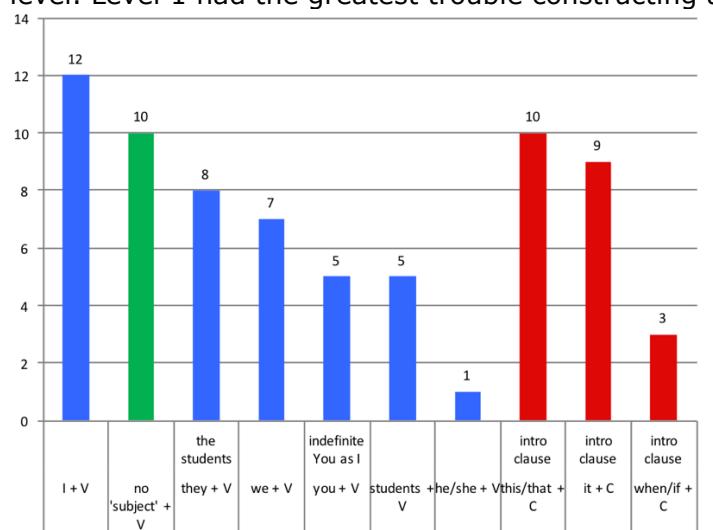


Figure 3: Level 1, Subjects of clauses following *because*.

Levels 2 and 3 were able to employ a high number of noun phrases as subjects (*some students, most high school students*), often beginning the following clauses with adverbial prepositional phrases to contextualize the subject in terms of time or place (*in Taiwan we...*).

By level 4, writers began more explanatory clauses with NP than with *I*, most frequently with adverbial PP (*after graduating, nowadays universities*). *Because* plus pronouns showed different frequency of uses among levels, which suggests not only agency at the discourse level but also skill in building clauses.

Conclusion

An immediate example of curricular enhancement has been a focus of additional classwork on collocation, phrases, and lexical bundles (Hyland et al., 2011), beginning with identifying and discussing frequent collocations with the adjectives students felt confident enough to include in their extemporaneous writing. Using collocations can quickly be found through the online site <http://just-the-word.com>, a site which students can use easily. *Future*, for example, frequently used by levels 2 and 3, often collocates with *development, plan, generation, growth and policy*.

Neff-van Aertselaer (2013:202) reports that most writing in pre-university European EFL classes consists of stating knowledge from texts or memorization of lectures. Our Levels 1 and 2 students may have found themselves in such situations, perhaps because of their lower fluency. They may have had problems Neff-van Aertselaer describes, including not knowing what to count as evidence for a claim (p. 205). Toulminian rubrics such as the one developed by Stapleton and Wu (2015:22) keyed to their study of 125 Hong Kong seniors could be implemented within a focus on Kirkpatrick's call to examine how "the resources of the SL student are utilised and exploited to help them master writing in English" using the "knowledge about constructing arguments in their own cultures/L1s" as valued resources (2017:82). Lee and Deaken (2016) cap a fine research review on argumentation with a call for instructors to focus on interactional metadiscourse, which would allow emphasis on content-oriented hedges, boosters, or sentence adverbs as outlined by Hyland (2005; cf 2017). The Feng Chia entry-level learners did, however, use reader-oriented hedges (*think, in my opinion*), and an occasional attitude marker such as *interesting* or *agree* and they can join us in examining the learner corpus. Cotos (2014:205) reviews the use of learner corpora for learning-driven data, noting that students learn well when they can work from their own writing: writing teachers can work with "different linguistic features, different implementation conditions, different writing tasks, different learner corpus-based CALL programs..."(p. 219) Working from the data in the corpus to increase their comfort with metadiscourse, lexical collocations, and the ways one proffers an opinion in a report as opposed to an argument or an analysis could support our learning more about our learners and what tools we might need for our dialog with them.

References

- Altenberg, B. & Granger, S. (2001). The grammatical and lexical patterning of *make* in native and non-native student writing. *Applied Linguistics*, 22:173-195.
- Biber, D., Gray, B., & Poonpon, K. (2011). Should we use the characteristics of conversation to measure grammatical complexity in L2 writing development? *TESOL Quarterly*, 45(2): 5-35.
- Chien, S-C. Discourse organization in high school students' writing and their teachers' writing instruction: The case of Taiwan. *Foreign Language Annals*, 44: 417-435.
- Cotos, E. (2014). Enhancing writing pedagogy with learner corpus data. *ReCALL*, 26: 202-224.
- Hasselgård, H. (2009). Thematic choice and expression of stance in English argumentative texts by Norwegian learners. In Aijmer, K., (ed). *Corpora and language teaching*. NY: John Benjamins, 121-139.
- Hirvela, A. (2017). Argumentation & second language writing: Are we missing the boat? *Journal of Second Language Writing*, 36: 69-74.
- Hyland, K. (2005). *Metadiscourse*. London: Continuum.
- Hyland, K. (2017). Metadiscourse: What is it and where is it going? *Journal of Pragmatics* 113: 16-29.
- Kirkpatrick, A. (2017). How important is argument? *Journal of Second Language Writing*, 36: 81-82.
- Kirkpatrick, A., Xu, Z. (2012). *Chinese rhetoric and writing: an introduction for language teachers*. Anderson, SC: Parlor Press.

Lam, Y., Hew, K., Chiu, K. (2017). Improving argumentative writing: Effects of a blended learning approach and gamification. *Language Learning & Technology*, 22: 97-118.

Laufer, B. & Nation, P. (1995). Vocabulary size and use: Lexical richness in L2 written production, *Applied Linguistics*, 16: 307-22.

Lee, J. & Deakin, L. (2016). Interactions in L1 and L2 undergraduate writing: Interactional metadiscourse in successful and less-successful argumentative essays. *Journal of Second Language Writing*, 33: 21-34.

Mo, J. (2015). A contrastive study of the use of causal connectives by Chinese EFL learners and English native speakers in writing. *Theory and Practice in Language Studies*, 5(11): 2426-2432.

Neff-van Aertselaer, J.(2013). Contextualizing EFL argumentation writing practices within the *Common European Framework* descriptors. *Journal of Second Language Writing*, 22: 198-209.

Qin, J., Karabacak, E. (2010). The analysis of Toulmin elements in Chinese EFL university argumentative writing. *System*, 38: 444-456.

Qin, W., Ucelli, P. (2016). Same language, different functions: A cross-genre analysis of Chinese EFL learners' writing performance. *Journal of Second Language Writing*, 33: 3-17.

Rusfandi (2015). Argument-counterargument structure in Indonesian EFL learners' English argumentative essays. *RELC Journal*, 46: 181-197.

Darja Fišer, Maria Eskevich*

University of Ljubljana and Jožef Stefan Institute, Ljubljana, Slovenia
*CLARIN ERIC, Utrecht, The Netherlands

darja.fiser@ff.uni-lj.si - maria@clarin.eu

The CLARIN infrastructure for open science

Bio data



Darja Fišer is Assistant Professor at the Department of Translation Studies of the Faculty of Arts, University of Ljubljana. She teaches courses on corpus linguistics and translation technologies. As a researcher, she is currently active in the fields of computer-mediated communication and lexical semantics using corpus-linguistics methods and natural language processing. She is Director of User Involvement of the European research infrastructure for language resources and technology CLARIN ERIC.



Maria Eskevich is Central Office Coordinator at CLARIN ERIC. She has a strong background in language and speech technologies, digital humanities, information retrieval and evaluation. As a post-doctoral researcher, she has worked on policies for text and data mining, open access and multimedia search and hyperlinking. Her Ph.D. is on spoken document retrieval, data set creation, and results evaluation.

Abstract

CLARIN is a European Research Infrastructure providing access to language resources and tools. CLARIN is compliant with FAIR principles (findability, accessibility, interoperability and re-usability of data) and represents a broad network with clear organizational structure. Overall, the CLARIN framework opens potential to give access to, as well as to provide depositing services for resources and tools relevant for researchers and trainers in the field of Computer Assisted Language Learning (CALL), which we present in this paper.

Conference paper

Introduction

CLARIN¹¹, Common Language Resources and Technology Infrastructure, is a European Research Infrastructure providing access to language resources and tools. It focuses on the widely acknowledged role of language as social and cultural data and the increased potential for comparative research of cultural and societal phenomena across the boundaries of languages [Hinrichs and Krauwer, 2014].

While the access to language data is crucial for scholars in the social sciences and the (digital) humanities [De Smedt et al., 2018], the collections that are constructed along the

¹¹ <http://www.clarin.eu>

way and deposited within the CLARIN infrastructure, as well as the tools that are developed for the content to provide additional layers of metadata, represent the information source that is of great interest and value also for the learning and teaching communities.

As CLARIN's vision, mission and design are founded on the FAIR principles (findability, accessibility, interoperability and re-usability of its resources, tools and services) [de Jong et al., 2018], we have recently started the initiative in which we organize existing language resources into the so-called CLARIN Resource Families that contain resources based on the same data types for many languages and are relevant for re-use in diverse contexts across scientific communities.

In this paper, we introduce the families of resources within the CLARIN infrastructure (Section 2), present CLARIN's most relevant web services for the CALL community (Section 3).

CLARIN's Resource Families

CLARIN's families of resources¹² are collections of existing language resources that are put together based on the type of language data, e.g. newspapers, and on the specific research goal in context of digital humanities and social sciences that those collections could be used for, e.g. parliamentary proceedings. In addition to enhancing research, CLARIN's resource families can also support various aspects of language teaching and learning, directly - by offering written, spoken and video production of second language learners, including linguistic and error annotation - or indirectly - by providing large volumes of authentic usage examples from specific text genres or discourse types or giving access to specialized vocabulary, terminology and phraseology in mono- as well as multilingual settings. Currently, we offer the following families of resources [Fišer et al., 2018]:

- *L2 learner corpora*: Over 30 corpora in 10 different languages that contain written, spoken and videorecorded production by second language learners in different settings and on different topics. Many of the corpora are enriched with error annotations and rich speaker metadata. Many of the corpora are available through concordancers and/or for download. They are suited for second language acquisition research as well as for the development of second language teaching materials and classroom activities.
- *Parallel corpora*: Over 80 corpora of parallel texts ranging from official legal documents to literary texts for diverse pairs of languages. Most corpora are sentence-aligned, some are also linguistically annotated and aligned at word-level. Most corpora are available through a concordancer and/or for download. They are suited for translation studies, contrastive linguistics and bilingual lexicography but also for the development of second language teaching materials and classroom activities.
- *Newspaper corpora*: Over 20 corpora of contemporary and historical digitized newspapers in 8 different languages. Most of them are lemmatised and morphologically tagged, some are also syntactically parsed and annotated with Named Entities. Many of the corpora are available through concordancers and/or for download. They are suited for monolingual and contrastive linguistic research, a wide range of lexicographic and terminological analyses, genre and stylistic investigations and diachronic comparisons.
- *Parliamentary corpora*: Over 15 corpora of contemporary and historical parliamentary debates in most CLARIN languages. Most corpora are richly linguistically annotated and contain high quality speaker metadata. All the corpora are available through a concordancer and/or for download. They are suited for spoken language research and a wide range of sociolinguistic investigations but can

¹² <https://www.clarin.eu/resource-families>

also be used for the development of second language teaching materials and classroom activities.

- *Computer-mediated corpora*: Over 15 corpora of user-generated content, e.g. chat rooms, discussion forums, comments, newsgroups, and tweets, where apart from lemmatization and tagging a unique linguistic annotation layer is normalization (i.e. annotating the non-canonical spelling variants with their canonical counterparts). Most corpora are available through a concordancer and/or for download. They are suited for informal language investigations (e.g. nonstandard spelling, neologisms, idiomatic variants), a wide range of variational and sociolinguistic studies but can also be used for the development of second language teaching materials and classroom activities.

All these resources can be found via CLARIN search functionalities (see Section 3) or on specifically dedicated sections of the CLARIN webpage¹³. We will be expanding CLARIN's families of resources with new data types regularly. Currently, we are working on overviews of the existing spoken corpora, historical texts corpora and manually annotated corpora within the CLARIN infrastructure.

CLARIN's Language Services

Beyond organizing corpora into resource families, CLARIN actively supports search and retrieval of all the existing corpora and text collections within the infrastructure. In addition, we also offer a range of tools which can be used to process existing or new text collections and corpora. To make them more user-friendly, they are offered as a web service where the relevant individual tools can be added to the toolchain by the user without the need for local installations or programming knowledge. The most relevant CLARIN's services for the CALL community are the following:

- There are separate pages that are specifically dedicated to families of resources.
- Virtual Language Observatory (VLO)¹⁴: The central CLARIN service which enables searching for resources in the entire CLARIN infrastructure and provides a uniform display of metadata [Van Uytvanck et al., 2012].
- Federated Content Search (FCS)¹⁵: A newly developed service which enables scholars to search with a single query in multiple, diverse resources without having to download them or master any specialized concordancer [Stehouwer et al., 2012].
- Language Resource Switchboard (LRS)¹⁶: A service still in development which helps users to connect the often-distributed language resources with the existing tools that can process them by listing all applicable tools for a given resource, specifying the tasks that the tools can achieve, and running the selected tool without the need to install or modify it [Zinn, 2016].
- Depositing Services¹⁷: CLARIN's depositing services through which researchers can store their own resources in a sustainable repository at a CLARIN centre, thereby archiving them in a reliable manner, making it available and more visible to the community as well as easily citeable through a persistent identifier.

Concluding Remarks

In this paper we have outlined the most relevant CLARIN families of language resources and tools for the CALL community. CLARIN commitment to the Open science, manifested in compliance with FAIR principles, provision of the access to diverse corpora via CLARIN tools, lays ground to the outreach towards broader communities, such as CAL, and beyond.

¹³ <https://www.clarin.eu/content/clarin-for-researchers>

¹⁴ <https://vlo.clarin.eu>

¹⁵ <https://www.clarin.eu/content/content-search>

¹⁶ <https://www.clarin.eu/content/web-services>

¹⁷ <https://www.clarin.eu/content/depositing-services>

References

- de Jong, F., Maegaard, B., De Smedt, K., , Fišer, D., and Van Uytvanck, D. (2018). CLARIN: Towards FAIR and Responsible Data Science in the Area of Language. In Proceedings of the Eleventh International Conference on Language Resources and Evaluation, Miyazaki, Japan.
- De Smedt, K., de Jong, F., Maegaard, B., Fišer, D., and Van Uytvanck, D. (2018). Towards an Open Science Infrastructure for the Digital Humanities: The Case of CLARIN. In Proceedings of the Third International Conference on Digital Humanities in the Nordic Countries (DHN2018), Helsinki, Finland.
- Fišer, D., Lenardič, J., and Erjavec, T. (2018). Meet CLARIN's Key Resource Families. In Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC 2018), Miyazaki, Japan. ELRA.
- Hinrichs, E. and Krauwer, S. (2014). The CLARIN Research Infrastructure: Resources and Tools for e-Humanities Scholars. Proceedings of the Ninth International Conference on Language Resources and Evaluation (LREC-2014), pages 1525–1531.
- Stehouwer, H., Durco, M., Auer, E., and Broeder, D. (2012). Federated search: Towards a common search infrastructure. In Proceedings of the Eight International Conference on Language Resources and Evaluation (LREC'12), Istanbul, Turkey.
- Van Uytvanck, D., Stehouwer, H., and Lampen, L. (2012). Semantic metadata mapping in practice: the virtual language observatory. In Proceedings of the Eight International Conference on Language Resources and Evaluation (LREC'12), Istanbul, Turkey. ELRA.
- Zinn, C. (2016). CLARIN Language Resource Switchboard. In Proceedings of the CLARIN Annual conference, Aix-en-Provence, France.

Mark R. Freiermuth & Thi Ha Do*

Gunma Prefectural Women's University, Tamamura-machi, Japan

*Ho Chi Minh City University of Technology and Education, Ho Chi Minh City, Vietnam

mark-f@fic.gpwu.ac.jp - markgunma@gmail.com - dothiha1985@gmail.com

When communication prevails: a text-based chat project between universities in Vietnam and Japan

Bio data



Mark R. Freiermuth is Professor of Applied Linguistics in the Faculty of International Communication at Gunma Prefectural Women's University. His research interests include discourses used in electronic communication and students' motivation as well as their willingness to communicate in a foreign language. His publication and presentations are a reflection of these interests.



Thi Ha Do has worked as a lecturer at HCMC University of Technology and Education in Vietnam. She is currently doing her PhD at University of Technology, Sydney in Australia. Her research interests lie in motivation, language testing and CALL.

Abstract

This study's primary aim was to see if electronic text-based chatting could be used as a global tool to motivate EFL students to communicate. 14 female Japanese university students chatted electronically with 22 Vietnamese university students in English. The students were given two tasks to resolve: 1) a jigsaw activity and 2) a decision-making activity. A number of problems were encountered during the activity that disrupted the flow of the chatsession. Nevertheless, during the chatting time (slightly more than one hour in total), both groups communicated intensively using English. Comments from a posttest questionnaire revealed that the students generally relished the opportunity to chat with one another, while brushing aside the problems that arose. Considering that the students remained motivated throughout the task lends credence to the notion that a recognition of the need to use the target language will become a driving force of communication.

Conference paper

In consideration of the needs of language learners to communicate with their peers in the target language (TL), one of the objectives of computer-mediated communication (CMC) ought to be interacting in the TL; however, it can and often does play second fiddle to the computer as a tool. In this study we look at how text-based electronic chat—a relatively old technological tool by today's standards—was used in an attempt to form a bridge of English communication between Vietnam and Japan. Nevertheless, to properly gauge whether or not the chatting session was successful, it is imperative to consider students' opinions about their pseudo-synchronous communication while using chat. Hence, this study considers student commentary as the primary source of whether or not students were motivated by the chatting experience with their online peers.

Modes of electronic communication as language learning devices have undergone significant changes since the days of email communication, which was arguably the first effective means for language learners to communicate in the target language with others (Warschauer, 1995). Today, teachers can employ blogs, Facebook, Twitter, platforms such as Blackboard and Moodle, as well as any number of mobile device applications to facilitate communication between students and themselves as well as between students and other students. Nevertheless, much of the communication that takes place between interlocutors occurs asynchronously, and however useful such communication may be, there is still a great need for pseudo-synchronous interaction that can only be managed due to the flexibility that computer applications offer (Freiermuth & Huang, 2018). This is a void that has been filled by electronic chat, which is available in both text-based and voice-based modes (Jepson, 2005).

Electronic chat mimics—at least superficially—spoken conversation, making it an attractive tool to those language teachers who consider communication to be a key element of successful learning. With this said, however, if learners are not satisfied by their attempts to communicate using technology-based applications, their language learning needs are no better served than by any other failed classroom activity. Fortunately, there is ample research to support the positive effects chat seems to have on learners communicating with one another (Freiermuth, *forthcoming*). For example, by participating in chat sessions, language learners have felt empowered, (Sullivan & Pratt, 1996; Warschauer, 1996; Warschauer, Turbee & Roberts, 1996); they have felt as if the playing field had been leveled so that they could communicate on equal footing (Freiermuth, 1998; Freiermuth & Jarell, 2006; Warschauer, Turbee & Roberts, 1996); they experienced less anxiety using chat when compared to face-to-face conversations (Freiermuth & Jarrell, 2006); they were more cognizant of their own grammatical output (Pellettieri, 2000); they felt they had more control over their learning (Schwienhorst, 2003); they were able to collaborate effectively (Beauvois, 1992; 1995; Meunier, 1998; Warschauer, 1996, 1997), they focused their attention on production rather than mistakes (Freiermuth & Jarrell, 2006), they enjoyed chat interaction more than face-to-face discussions (Freiermuth & Jarrell, 2006; Meunier, 1998), and they were more motivated to communicate with one another (Freiermuth & Jarrell, 2006; Freiermuth & Huang, 2012; Meunier, 1998).

In the present study, we wanted to see if Vietnamese and Japanese university students would take advantage of the opportunity to chat in English with each other. Moreover, we wanted to look at their posttest comments to see if they were motivated by the chat session.

Methodology

At the outset of this mini-project, a chatting session was discussed and a time was agreed upon as to when the chatting session would take place. There were 14 Japanese and 22 Vietnamese university students who participated in the chatting session. The researchers placed the students into groups of four so that each group had at least one Japanese participant. The following table illustrates the group compositions.

Group make up	Number of groups
2 Japanese & 2 Vietnamese	5
1 Japanese & 3 Vietnamese	4

As participation in the chat session was voluntary, it was unclear how many participants would attend the activity. As such, the groups had to be arranged while the students were in their perspective computer labs.(The web-based chat application used for this chat session was LECs (Language Educational Chat System), which is a very simple application that allows for grouping students quickly.)

Once the groups had been decided, the groups then start chatting. At the beginning of the task, students were told to introduce themselves, which was limited to five minutes due to significant delays in getting started. The first task asked students to solve a jigsaw activity together; each student in a group had one of four sketched drawings from a story. The four sketches told a simple story. The students were asked to find the storyline by describing their scene to the other group members. Additional delays occurred because the researchers needed to be sure that no group member at either end of the chat group had the same sketch as another. The groups were allowed about 40 minutes to resolve the task, which meant that a few groups could not finish. They were then asked to make a summary statement of the story.

The next task asked the students to start a joint venture company and locate it in either Japan or Vietnam. After about ten minutes of chatting, the internet connection was lost and the remainder of the chat session had to be cancelled. In all, students chatted for about 70 minutes.

The groups were then given a posttest questionnaire, which presented some Likert-scale items to students as well as asking them a number of open-ended questions. In this brief report here, we will focus exclusively on the responses to the open-ended questionnaire items.

Results and Discussion

Prior to discussing the principle findings, it is important to have at least a tacit understanding of the kinds of problems that can unfold when depending on the internet. In this study, the researchers were separated by literally thousands of kilometers of ocean, so Facebook messaging on personal mobile devices was the vehicle used for researcher to researcher communication during the chat session. Although this worked exceedingly well, it was still very difficult to form the small groups, essentially resulting in a long delay prior to the students being able to start the chatting session.

A second trouble spot was providing learners with the appropriate sketch for the jigsaw activity. As there were four sketches for each story, that meant that each member had to have a different sketch. As we wanted to mix it up at least a bit, this required heavy communication back and forth via Facebook messaging. This resulted in a delay of the jigsaw task as well.

The third problem was undoubtedly the most serious and one that researchers who intend to replicate this type of activity should be wary about from the start. Despite all of the advances in technology, internet problems still do occur. For our study the problems presented in two ways. The first sign of trouble was the long lag times. This was somewhat surprising given the capabilities of present-day networks. The second was more problematic in that the network went down shortly after the second task had begun. The network was, unfortunately, restored only after the researchers had decided to end the activity because of the time.

With so many problems, it would be easy to imagine that the chatting session project was nothing short of a disaster. However, students' reactions told quite a different tale.

In this short report, we consider only the qualitative comments students provided concerning their personal assessment of the chatting session. Here are some of their comments as written in English (or translated to English from the native language if in *italics*):

- J1: Solving the problems with people from other countries is fun
- J2: I enjoyed chatting. Talking with others in English is fun. That was my first time to chat with students of abroad. That was good experience for me.
- J3: My motivation has increased. It was exciting to chat with foreigners.

- J5: It was refreshing to communicate with foreign students.
- J6: We cannot chat with other countries student except this class.
- J7: It was great opportunity to chat with them in English which are not our first language. And it was inspiring that we tried to communicate to solve a question together.
- J8: I enjoyed a lot. It was so interesting to and meaningful to talk with people from other country.
- J9: Vietnamese were kind and supportive. I'd love to see them.
- J10: Through our course, we've gained communication skills, so it was a good opportunity to talk with different people.
- J11: This kind of activity make students be interested in English.
- J12: In society, being able to communicate with non-native English speaker is useful and required. So chatting made me notice that. Actually it was new for me, and I had fun!
- J14: It was very important experieince in my college life. Because I can't go to study abroad.
- V1: It's very interesting to see the point of view from friends in Japan. There is no image or audio, we just use words to draw picture and it is the reason words have their beauty.
- V3: I think I am an extrovert person and I enjoy talking with strangers cause it pushes my motivation in sharing my ideas and showing up.
- V4: ...after interacting with your Japanese partners, I had more motivation to learn English to talk with more friends.
- V5: Student in Japan are very nice, they talk and give ideas politely.
- V6: Because after chatting with Japanese partners, I want to learn English well to communicate with other students in different country.
- V7: I'm very interested in this chat activity. It can make a good relationship between Vietnam and Japan
- V8: English is the key which helps us to communicate with foreigners.
- V9: *I would always like to interact with foreigners when possible.*
- V10: ...because this activity is exciting and interesting.
- V11: *I really like this activity. I feel comfortable and interested. Thanks to it, I have a chance to work with foreigners and express my ideas most naturally.*
- V12: Cultural differences play an interesting role in learning.
- V13: ...we had more chances to use English in real life
- V14: I feel motivated to learn English. I feel that I should learn hard to make my communication be increased.
- V15: *I really like this activity because it is not test-oriented and does not insist on correct answers. We mainly talk in a friendly atmosphere.*
- V16: Chatting with other people from a different country in the same language is interesting. Also, I am able to learn about the culture and lifestyles of them.
- V18: We have the ability to talk and discuss with other student in Japan and it was amazing.
- V19: ...it gave me an opportunity ti chat and make new friends, especially friends from another country.
- V20: It is really amazing because it is colorful with many new friend as well as great source of knowledge.
- V21: ...we have chance to communicate with friends from the other country.
- V22: *...we could enhance our skills in discussing, cooperating and even debating, which is very good for finding the best solution.* We have a change to make new friends, broden more knowledge about Japan.

Students found the activity motivating despite the problems. They were certainly aware of the problems (referred to in numerous comments as well), but it did not dissuade them. There were a few dissenters to be sure, which can be noted by their absence of any comments above. We would be remiss if we did not provide their comments as well. J4 and V2 seemed somewhat indifferent, so their comments were neither positive nor negative. J13 had this to say, "It is better to talk with native speakers..." It should be noted that J13 had very recently returned from studying at a US university, which may have affected her opinion. The other somewhat negative opinion came from V17; he mentioned this, "...it's

just a text chat and we do not receive much experience also motivation. I think a voice chat maybe a good solution for this problem." He also seemed irritated that he had to wait for Japanese students to respond, which was likely dueas much to lag time as to the speed of Japanese respondents.

With that said, although many students mentioned the technical problems, the vast majority of them also mentioned that they had a positive experience chatting. We suggest here that because students became aware of the need to use English, English became their bridge of communication, or as one student mentioned, "Even though we can't understand their native language, we talked with Vietnamese students. That was so amazing."

Conclusion

In this study, we wanted to see if EFL students from universities in Japan and Vietnam would find a text-based chat project motivating. Despite a spate of problems that arose, students, on the whole, found the activity to be quite motivating and meaningful. There are two aspects that are especially poignant. First, there is the notion of *international posture* as expressed by Yashima (2009), which points to an eagerness by EFL students to interacton the global stagewith others outside of the immediate peer group of like native-speakers. In our study, students not only experienced this during the chatting session but were anticipating the experience prior to its start (students were visibly alert, nervous and excited). Second, there was the increased importance assigned to English because it allowed communication to take place. The need to use English to make oneself understood makes EFL learning seem more practical and advantageous to the learning experience. As Freiermuth and Huang (2015, p. 77) suggest, "Many language learning students, especially in EFL situations, want to communicate with others outside of their immediate circle of peers, and if they have a sense that they are actually able to communicate in English as their lingua franca—and as their only means to communicate effectively—any perceived or real differences that may exist between interacting groups will dissipate and the students can enjoy learning language and using the TL for what it is intended—communication." With this in mind, we conclude with this thought: Text-based chatting is an effective way to form a bridge to facilitate communication in a TL. There might be problems that arise, but if students—especially in EFL contexts—have a chance to communicate in the TL, the need to communicate will win the day.

References

- Beauvois, M. (1992). Computer-assisted classroom discussion in the foreign language classroom: Conversation in slow motion. *Foreign Language Annals*, 25, 455-464.
- Beauvois, M. (1995). E-talk: Attitudes and motivation in computer-assisted classroom discussion. *Computers and the Humanities*, 28, 177–90.
- Freiermuth, M. (1998). Small group on-line chat: The great equalizer. In P. Lewis (Ed.), *Teachers, learners, and computers: Exploring relationships in CALL* (pp. 81-86). Nagoya: The Japan Association for Language Teaching Computer-Assisted Language Learning Special Interest Group.
- Freiermuth, M. & Jarrell, D. (2006). Willingness to communicate: Can online chat help? *International Journal of Applied Linguistics*, 16, 189-212.
- Freiermuth, M.& Huang, H. (2012). Bringing Japan and Taiwan closer electronically: A look at an intercultural online synchronic chat task and its effect on motivation. *Language Teaching Research*, 16, 61-88.
- Freiermuth, M. & Huang. H. (2018). Assessing willingness to communicate for academically, culturally, and linguistically different language learners: Can English

become a virtual Lingua Franca via electronic text-based chat? In B. Zou & M. Thomas (Eds.), *Handbook of research on integrating technology into contemporary language learning and teaching*, (pp. 57-85). Hershey, PA: IGI Publishing.

Jepson, K. (2005). Conversations—and negotiated interaction—in text and voice chat rooms. *Language Learning and Technology*, 6, 79-98.

Meunier, L. (1998). Personality and motivational factors in computer-mediated foreign language communication. In J. Muyskens (Ed.), *New ways of learning and teaching* (pp. 145-97). Boston: Heinle & Heinle.

Pellettieri, J. (2000). Negotiation in cyberspace: The role of chatting in the development of grammatical competency in the virtual foreign language classroom. In M. Warschauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice* (pp. 59-86). Cambridge: Cambridge University Press.

Schwienhorst, K. (2003). Neither here nor there? Learner autonomy and intercultural factors in CALL environments. In D. Palfreyman, & R. Smith (Eds.), *Learner autonomy across cultures: Language education perspectives* (pp. 164-179). Basingstoke, UK: Palgrave Macmillan.

Sullivan, N. & Pratt, E. (1996). A comparative study of two ESL writing environments: A computer-assisted classroom and a traditional oral classroom. *System*, 29, 491-501.

Warschauer, M. (1995). *E-Mail for English Teaching: Bringing the Internet and Computer Learning Networks into the Language Classroom*. Alexandria, VA: TESOL.

Warschauer, M. (1996). Comparing face-to-face and electronic discussion in the second language classroom. *CALICO Journal*, 13, 7-26.

Warschauer, M. (2000). "CALL for the 21st Century" IATEFL and ESADE Conference, 2 July 2000, Barcelona, Spain. Available from <http://www.gse.uci.edu/markw/cyberspace.html>.

Warschauer, M., Turbee, L., & Roberts, B. (1996). Computer learning networks and student empowerment. *System*, 24, 1-14.

Yashima, T. (2009). International posture and the ideal L2 self in the Japanese EFL context. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 144-163). Clevedon, UK: Multilingual Matters.

Kolbrún Friðriksdóttir & Birna Arnbjörnsdóttir

University of Iceland, Reykjavík, Iceland

kolbrunf@hi.is - birnaarn@hi.is

The resourceful CALL learner and effective blended learning

Abstract

This paper introduces an ongoing, survey-based study which elicits students' views on their learning experience in three different modes of delivery on the Icelandic Online (IOL) program (www.icelandiconline.com), an open online course in Icelandic as a second language. IOL offers the same identical courses in three delivery modes, blended, distance, and open self-directed mode. Previous findings (Friðriksdóttir, 2017; Friðriksdóttir & Arnbjörnsdóttir, 2017), which draw on tracking data from 43,000 learners on IOL, reveal that overall student retention on the seven IOL courses is relatively low and that retention and the timing of student attrition differ by mode of delivery, where the blended learning mode is most effective in retaining learners. The goal of this follow-up study is to explore whether certain internal and external mode-specific factors serve to encourage or discourage learner retention on IOL.

Conference Paper

The open accessibility of LMOOC courses such as IOL attracts large numbers of learners from a range of backgrounds, experiences, expectations, and goals. This complexity poses challenges for researchers when trying to analyze collected data on learners' behavior. The field of Learning Analytics (LA) provides a valuable means to process massive data on learning languages online and thus lay the foundations for researching how to engage and retain online learners. This study focuses on some of the many factors that may influence engagement and retention of online learners (Long & Siemens, 2011). MOOC critics are concerned about typically low overall completion rates on MOOCs (Jordan, 2014). Many argue that retention on MOOCs is commonly evaluated based on statistics alone without consideration to factors such as a student's initial goal (Koller, Ng, & Chen, 2013; Reich, 2014), pedagogical design of the learning context (Gelan, 2017), and many other personal and course-related reasons that may influence non-completers' decision to leave a course (Hone & El Said, 2016). Evidence suggests that students in online learning environments confront more motivational challenges than traditional in-class students since they have to work independently at a distance in most cases, reducing social and technical support they may need (Wang & Baker, 2015). On a similar note, it has been pointed out (Ushioda, 2014) from the perspective of sustaining long-term engagement in L2 learning that personal goals and targets are important in providing a motivational rationale, and that motivated students study regularly and productively in order to improve their language skills (Ushida, 2005). Furthermore, Miller (2015) argues the need for pedagogical research on MOOCs and claims that teacher/learner interaction and the development of learning communities are missing components in MOOCs.

The survey research presented here is based on previous findings on student retention in open online courses and relies on data collected by an internal tracker, which follows student retention and online behavior on all the seven IOL courses (Friðriksdóttir, 2017; Friðriksdóttir & Arnbjörnsdóttir, 2017). The results exposed overall low retention rates on IOL with fairly regular attrition patterns appearing across all the three different modes of delivery, that is, concentrations of drop-outs at specific junctures in the courses. The blended mode was found to be most effective in retaining students. These findings call for a

more in-depth study of why students decide to stay on or leave the IOL program and as to why the blended mode is more effective than the other modes in retaining students. They give cause to examine whether certain mode-specific factors may influence student retention. Guided by this question, a survey was sent out to the group of students whose behavior online had been tracked in order to investigate the impact of certain mode-specific factors on student retention in the three different modes of delivery on one of the IOL courses, that is, factors such as a) tutor interaction, b) initial introduction of the program, and c) paper submission. The current focus is on learners ($N = 400$) who enrolled in one of the IOL courses, IOL 2, from 2013-2018. This is a lower intermediate course delivered in three different modalities, a) as an open self-directed, free non-tutorial, non-credential course without time limits; b) a distance learning eight-week non-credential diploma course with a fee and an online tutor; and c) as a blended learning 13-week credential course at the University of Iceland with an option to interact with a tutor face-to-face or via email. The specific focus of the current study is on learner experience with different modes of delivery and possible effect these experiences may have had on learners' decisions to leave or remain on the course.

The questionnaire follows the principles that provide the pedagogical foundation for each of the three different modes of delivery on IOL, allowing exploration of the effect of certain mode-specific factors on retention. The main objective of the survey is to explore whether experimental variables are predictive of the extent to which learners engaged with the course. The investigation is aimed at learners who have covered more than 15% of the course content on each of the three modes of delivery, thus allowing comparisons to be made between these three sub-groups. Different categories of experience were considered in terms of mode-specific factors (tutor-related factors in some of the modes), that is, experiences related to a) tutor interaction, b) face-to-face introduction of the program, c) syllabus delivery, and d) paper submission, for example. Two additional categories of experiences were also considered, that is, a) student initial goal when signing up for the course, and b) student self-reported commitment to the course.

Preliminary findings show that variant tutor-related factors specifically offered in the blended learning environment are significant predictors of student retention on IOL. Significant differences in retention have also been identified a) between learners who had the initial goal to complete and those who did not have such a goal, and b) between those who worked regularly on the program and those who did not.

This study is the second phase of a three-tiered mixed method study, where the third phase will investigate content-specific factors on IOL in terms of retention.

References

Friðriksdóttir, K. (2017). The impact of different modalities on student retention and overall engagement patterns in open online courses. Computer Assisted Language Learning. doi: <https://doi.org/10.1080/09588221.2017.1381129>

Friðriksdóttir, K., & Arnþjörnsdóttir, A. (2017). Determining factors in student retention in online courses. In K. Borthwick, L. Bradley & S. Thouësny (Eds.), CALL in a climate of change: adapting to turbulent global conditions - short papers from EUROCALL 2017 (pp. 116-121). Research-publishing.net. <https://doi.org/10.14705/rpnet.2017>

Gelan, A. (2017). Using Learning Analytics and the xAPI specification to find what students are actually doing when learning online. The VITAL project and its approach to analyzing and visualizing learner behavior in different blended and distance learning contexts. CALL in Context Proceedings (pp. 253-262). XVIIIth International CALL Research Conference.

Hone, K. S., & El Said, G. R. (2016). Exploring the factors affecting MOOC retention: A survey. *Computers & Education* 98, 157-168.

Jordan, K. (2014). Initial trends in enrolment and completion of massive open online courses. *The International Review of Research in Open and Distributed Learning*, 15(1), 133-160. doi:10.19173/irrodl.v115il.1651

Koller, D., Ng, A., & Chen, Z. (2013). Retention and intention in massive open online courses: In depth. *EDUCAUSE Review*. Retrieved from <https://er.educause.edu/articles/2013/6/retention-and-intention-in-massive-open-online-courses-in-depth>

Long, P., & Siemens, G. (2011). Penetrating the fog: Analytics in learning and education. *EDUCAUSE Review*. Retrieved from <https://er.educause.edu/articles/2011/9/penetrating-the-fog-analytics-in-learning-and-education>

Miller, S. L. (2015). Teaching an online pedagogy MOOC. *Journal of Online Learning and Teaching*, 11(1), 104-119.

Reich, J. (2014). MOOC completion and retention in the context of student intent. *EDUCAUSE Review*. Retrieved from <http://www.educause.edu/ero/article/mooc-completion-and-retention-context-student-intent>

Ushida, E. (2005). The role of the students' attitudes and motivation in second language learning in online language courses. *CALICO Journal*, 23(1), 49-78.

Ushioda, E. (2014). Motivation, autonomy and metacognition. Exploring their interactions. In D. Lasagabaster, A. Doiz, & J. M. Sierra (Eds.), *Motivation and Foreign Language Learning. From Theory to Practice* (pp. 31-49). John Benjamins Publishing Company: Amsterdam/Philadelphia.

Wang, Y., & Baker, R. (2015). Content or platform: Why do students complete MOOCs? *Journal of Online Learning and Teaching*, 11(1), 17-30.

Odette Gabaudan & Susanna Nocchi

Dublin Institute of Technology, Dublin, Ireland

Odette.gabaudan@dit.ie - susanna.nocchi@dit.ie

Information literacy for undergraduate students: integrating an OER into the foreign language curriculum

Bio data

Odette Gabaudan is Lecturer in French at the Dublin Institute of Technology. As the President of the Applied French Association, she plays an active role in the promotion of French in higher education institutions in Ireland. Her research interest is in e-learning and in particular the integration of technology in her language teaching. Further information can be found at:

<http://dit.ie/llss/people/languages/staffarticles/name,102945,en.html>

Susanna Nocchi is Lecturer in Italian at the Dublin Institute of Technology, Ireland. She is co-chair of the EuroCALL Virtual Worlds and Serious Games Special Interest Group and President of the Irish Association for Applied Linguistics. Her research interests include CALL, particularly Virtual Worlds and their potential for the teaching and learning of foreign languages (FL), the role and development of Digital Literacies in FL learning and the use of subtitling for FL teaching and learning. Further information can be found at:
<http://www.dit.ie/llss/people/staff/staffarticles/name,102961,en.html>

Abstract

Increasing digital literacy and awareness of what it means to be digitally literate in our population of students has been the focus of much research and social debate in the past decade (Buckingham, 2007; Eco, 2013, McGrew, Ortega, Breakstone & Wineburg, 2017). This paper aims to present a number of challenges inherent to adapting an open access portal for embedding digital literacies in the foreign language (FL) class. The portal, Digilanguages, is an Open Education Resource (OER) resulting from a collaboration between a number of Irish universities. It aims to offer open, flexible online support for FL instructors and learners in the areas of digital literacies, language practice and skills, and transitions and contexts. The paper concentrates on a sub-set of digital literacies, namely information literacy and presents the preliminary results of an on-going action research study designed to test and evaluate the embedding of information literacy activities in an Irish higher education FL curriculum.

Conference paper

Introduction

In the digital age, educators are encouraged to "realise the potential of digital technologies to enhance teaching, learning and assessment" (Irish Department of Education and Skills, 2015, p.5). At the same time they are also expected to provide their students with the skills needed to be able to critically utilise, manipulate, and create content in a digital environment (Buckingham, 2007; Karpati, 2011). It is agreed that proficiency in using digital devices and digital literacy are two different competencies (Powell & Varga-Atkins, 2013; Noh, 2017). It is thus the role of the educational institutions to develop new pedagogies that will support learners in acquiring what is now

considered as an essential “component of life skills” (Karpati for UNESCO, 2011, p.3). With this in mind, a consortium of six Irish third level institutions designed an Open Educational Resource (OER) in the form of an online portal, digilanguages.ie, with multilingual activities (English, French, German, Irish, Italian, Spanish) aimed to offer flexible online support for FL instructors and learners in, amongst others, the area of digital literacies for language development. Digilanguages uses a Creative Commons license and was created in an effort to change practices in the Irish FL classroom. It therefore targets instructors, offering them online options for continuous professional development (CPD) as well as a series of structured class activities that can be adapted to their particular teaching context. The following section will present an overview of the authors’ conceptualisation of digital literacy and, more specifically, of information literacy. This will be followed by a section on OERs and their use in changing teaching and learning practices. A description of the on-going research study, its context and methodology will follow, with a brief presentation of a set of collected data, its analysis and conclusions.

Information literacy, as a subset of digital literacies

In today’s digital world, digital literacy has become essential for living, working and learning. Literacy is often used as a generic term to describe competence in an area e.g. mathematical literacy. On the other hand, the plural “literacies” signals the multiplicity of practices around reading and writing (Goodfellow & Lea, 2014). More recently, in an ecological social context, digital literacies have been conceptualised as “engag[ing] with the use of digital devices and technologies as part of the broader ecology of communicative practices” (Tusting, 2017). The theoretical approach taken in this study is that literacy is indeed a socially, historically and culturally situated practice, as “being literate is always being literate for entry into a particular community or group” (Belshaw, 2012, p. 150).

On a practical level, our digital native students generally have a familiarity with technology, but they do not always fully understand it or know its limitations. Katz (2007) refers to the “new illiteracy” concerns of educators with students quickly adopting new technologies without necessarily acquiring the skills for being critical students, consumers, workers or citizens. Information literacy has become a growing concern amongst educators, as Eco (2013) advocated: “Only the universities (and, more broadly, all educational institutions) can teach us how to select [information]. We must create and divulge a new art of filtering^{18*}”.

Consequently, critical thinking skills have been found to be an essential component in developing information literacy (Neumann, 2016), particularly as evaluation is a crucial but complex skill in literacy. Information literacy is conceptualised in this paper as demonstrating the competencies to locate, collect, evaluate and use effectively the needed information (Hignite, Margavio, & Margavio, 2009) for the purposes of problem-solving, decision-making and research (Bruce, 1999).

Open Educational Resources

The OECD (2007, p. 131) refers to OERs as “digitised materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research”. In addition, OERs benefit from an intellectual property license that permits their free use and re-purposing by others. These characteristics make OERs more flexible than traditional print-based materials as they can be modified by educators and students depending on their specific educational and contextual needs (Thoms & Thoms, 2014).

The availability of OERs is growing rapidly. Yet awareness of OERs among instructors and their overall adoption of OER material remains low (Seaman & Seaman, 2017; Masterman & Wild, 2011). Some recurring issues with the adoption of OERs include the

¹⁸ Authors’ translation

time and effort required to find, evaluate and adapt suitable material (Thoms & Thoms, 2014). In terms of FL teaching and learning, Thoms and Thoms (2014) note that few empirical studies examine the impact of OERs on FL learning and teaching. In this respect, various OER repositories have developed rubrics that allow educational OER evaluation and use (e.g. Edutopia.org, the Poerup European project, the Achieve Evaluating Tool by OER Commons).

Open educational resources can trigger a change in educational practices by encouraging individuals to adopt new pedagogies, share, collaborate and teach in open networks (Masterman & Wild, 2011). This is of particular relevance to this study, as we are examining changes in instructors' practices and linking them to changes in the syllabus and in students' perceptions. The following sections describe the context, methodology and data collection of the study.

Study context, methodology and data collection

The study took place in the Dublin Institute of Technology, an Irish tertiary institution, in 2017/2018. The research study was designed to test and evaluate the embedding of information literacy FL activities by one teacher of Italian as a FL and one teacher of French as a FL within their respective FL groups of undergraduate students of Business with Italian or with French. The students' language proficiency varied between a B1+ and a C1 on the CEFR for languages and the activities were offered as part of the students' final year's module in Current Affairs. The Current Affairs module aims to develop students' understanding and critical appraisal of current affairs in the country of their foreign language. The Digilanguages resource includes a significant section that deals with digital literacy. One of its subsections is dedicated to information literacy. The instructors selected a number of proposed tasks on the portal before individually exploring ways of utilising, adapting and/or dismissing them so as to meet their specific teaching context and their class needs.

The data consisted in a start and end questionnaire administered to the students and in the instructors's own self-reflective diary. Given the constraints of this paper, the following section focusses on a broad description of an analysis of the instructors' diaries.

Data analysis

The instructors' self-reflective diaries recorded the experience of the two instructors in terms of choice of FL activities, their adaptation and implementation. The instructors also recorded the constraints experienced in using the OER.

The instructors notes were investigated broadly following the Achieve rubrics:

Degree of alignment to course objectives

The selected tasks on the portal were broadly aligned to the overall learning outcomes of the module. Also of relevance is the design used in each of the portal's tasks. With the exception of suggestions for assessments, the design structure follows most of the principles of constructive alignment (Biggs, 1996) including overall aims, specific learning outcomes, selection of resources for each of the languages and planning of teaching activities. This logical pathway echoes the instructors' instruction approach and therefore facilitated the process of taking ownership of the open teaching resources.

Accessibility

Though the material was easily accessible, it was generally not necessary during class time to have access to the portal's resources. When Internet access was required, instructors used the main console or students were asked to use their mobile phones or laptops.

Quality of Explanation of subject matter

The instructors found that the different types of digital literacies are clearly broken down in different sections. They are well explained, with supporting examples and videos. As

for the proposed tasks for instructors and their students, the learning outcomes and procedures were particularly well laid out. At times and as expected, they required some adaptation to meet the particular teaching and learning contexts. The CPD explanations of each of the digital literacies were a useful introduction to develop an overall awareness of the issues at stake.

Utility of materials

The generic materials available through English provided a good overview of the subject matter but were not used during the instructors' teaching. The resources made available in the FL for Italian and French were not always reliable in terms of quality and relevance. Such glitches were easily overcome by an experienced teacher.

Quality of assessment

It was found that explicit suggestions for assessments were generally not available on the portal. However, task procedures are often laid out in such a manner that assessment was somewhat inherent to the task. In other words, once students had followed a detailed procedure, they clearly came to understand the issues at stake.

Quality of technological interactivity

The technological interactivity was limited as most interactions took place face to face, during class time. Preparation of tasks outside of class did not require peer interaction.

Quality of instructional and practice exercises

The discipline specific tasks and resources are a very useful means of enhancing instructors practice. However, it does require significant time investment and therefore a high level of motivation.

Opportunities for deeper learning

For students, the proposed procedure was generally very good at fostering deeper learning. Any shortcomings were addressed with the instructors designing additional tasks. The clearly laid out learning outcomes were key in supporting the instructors in adopting new practices in the context of self-directed learners.

Conclusions

The paper presented the perspective of two instructors using an OER in view of incrementally adopting new pedagogical practices in the FL class. The instructors' engagement with the OER was instrumental in stimulating a critical reflection in relation to their pedagogical practices and, in particular, to the relevance of embedding digital literacies in their teaching practice. The portal facilitated the instructors in implementing the changes and in generating a set of data to help instructors contextualise the learning process for all relevant parties.

As the two instructors had been involved in developing the portal, they had a level of familiarity with its abundance of resources but also with its complexity. The next phase of the action research will consider the experience of colleagues who have had no prior involvement with the portal.

Regarding sustainability, in adapting the material to their class needs, the instructors have developed alternative procedures or found new interesting material and links which they will be able to upload onto the website using their login credentials. It is important to note that, for security and quality assurance reasons, the portal's updating infrastructure is a closed system. Instructors wishing to share their ideas have no access to upload material, if they are not involved in the project.

References

- Achieve OER rubrics, Retrieved from <https://achieve.org/oer-rubrics>
- Belshaw, D. A. J. (2012) What is 'digital literacy'? A Pragmatic investigation. (Unpublished doctoral dissertation). Durham University. Retrieved from Durham E-Theses Online: <http://etheses.dur.ac.uk/3446/>
- Biggs, J. (1996). Enhancing Teaching through Constructive Alignment. *Higher Education*, 32(3), 347-364
- Bruce, C. S. (1999). Workplace experiences of information literacy, *International Journal of Information Management*, 19, 33-47
- Buckingham, D. (2007). Digital Media Literacies: rethinking media education in the age of the Internet. *Research in Comparative and International Education*, 2(1), 43-55.
- Eco, U. (2013). Perché le università? Micromega online, Retrieved from <http://temi.repubblica.it/micromega-online/perche-le-universita/>
- Goodfellow, R. & Lea, M. (2014). *Literacy in the Digital University*. Routledge, Abingdon and New York
- Hignite, M., Margavio, T. M., & Margavio, G. W. (2009). Information Literacy Assessment: Moving beyond Computer Literacy, *College Student Journal*, 43(3), 812-821.
- Howe, J., Bowe, B. J., & Zeldes, G. A. (2012). Using a Wiki to produce journalistic best practices. *Communication Teacher*, 26(1), 22-32.
- Irish Department of Education and Skills (2015). *Digital Strategy for Schools 2015-2020. Enhancing Teaching, Learning and Assessment*. Retrieved from <https://www.education.ie/en/Publications/Policy-Reports/Digital-Strategy-for-Schools-2015-2020.pdf>
- Jones, R. H. & Hafner, C. A. (2012). *Understanding Digital Literacies. A practical introduction*. London: Routledge.
- Karpati, A. (2011). UNESCO Digital Literacy in Education, Policy Brief. UNESCO Institute for Information Technologies in Education, Retrieved from <http://unesdoc.unesco.org/images/0021/002144/214485e.pdf>
- Katz, I., (2007). Testing Information Literacy in Digital Environments: ETS's iSkills Assessment. *Information Technology and Libraries*.
- Masterman, E., & Wild, J. (2011). JISC Open Educational Resources Programme: Phase 2 OER Impact study: Research report. University of Oxford. Retrieved from <https://weblearn.ox.ac.uk/access/content/group/ca5599e6-fd26-4203-b416-f1b96068d1cf/Research%20Project%20Reports/OER%20Projects%202011-2014/JISC%20OER%20Impact%20Study%20Research%20Report%20v1-0.pdf>
- McGrew, S., Ortega, T., Breakstone, J. & Wineburg, S. (2017). The Challenge that's bigger than Fake News. Civic Reasoning in a Social Media Environment. *American Educator*, Fall, 4-9.
- Neumann, C. (2016). Teaching Digital Natives: Promoting Information Literacy and Addressing Instructional Challenges. *Reading Improvement*, 101-106.

Noh, Y. (2016). A study on the effect of digital literacy on information use behaviour. *Journal of Librarianship and Information Science*, 1-31.

OECD (Organisation for Economic Co-Operation and Development) (2007). Giving Knowledge for free. The Emergence of Open Educational Resources. Retrieved from <https://www.oecd.org/education/ceri/38654317.pdf>

Powell, S. S. & Varga-Atkins, T. (2013). Digital Literacies: A Study of Perspectives and Practices of Academic Staff: a project report. Written for the SEDA Small Grants Scheme. Liverpool: University of Liverpool. July. Version 1. Retrieved from <https://www.seda.ac.uk/resources/files/PowellVargaAtkinsFinalRpt.pdf>

Seaman, J. E. & Seaman, J. (2017). Opening the Textbook: Educational Resources in U.S. Higher Education, Babson Survey Research Group. Retrieved from <https://www.onlinelearningsurvey.com/reports/openingthetextbook2017.pdf>

Thorne, S. L. & Black, R. W. (2007). Language and Literacy Development in Computer-Mediated Contexts and Communities, *Annual Review of Applied Linguistics*, 27, 133-160. Thoms, J.J. & Thoms, B.L. (2014). Open Educational Resources in the United States: Insights from University Foreign Language Directors. *System*, 45, 138-146.

Tusting, K. P. (2017). Ecologies of digital literacies: implications for education. In *Encyclopedia of Language and Education* (3-15). Cham: Springer, Cham.

Robert Godwin-Jones

Virginia Commonwealth University, Richmond, USA

rgjones@vcu.edu

Restructuring intermediate language instruction with open and student-curated materials

Bio data



Robert Godwin-Jones is Professor of World Languages and International Studies at Virginia Commonwealth University. His research is principally in applied linguistics, in the areas of language learning and technology, and intercultural communication. He has published 4 books, multiple articles and book chapters, and writes a regular column for *Language Learning & Technology* on emerging technologies.

Abstract

This paper describes a project featuring student-discovered and curated online L2 learning materials, posted and discussed on class blogs. Select resources are enhanced with joint faculty/student-authored explanatory glosses, notes and exercises, transforming them into interactive online modules, available as OER. The modules are designed to function as "bridging activities" (Thorne & Reinhardt, 2008) and, together with other open resources, as digital replacements for commercial textbooks. This is a department-wide curricular initiative featuring "participatory action research" (Zuber-Skerrit, 2002) with the goal of enhancing instruction and increasing student motivation. The project reflects the call for better integration of the affordances of informal learning into the language classroom (Reinders & Benson, 2017).

Conference paper

Introduction: project background

Cole & Vanderplank (2016) call for "new research [to] investigate projects that involve individualised, out-of-classroom use or 'forays' in which learners use language independently out-of-class and then report back on their individual experiences to a group of peers" (41). This suggestion mirrors other calls for the better integration of the affordances of informal language learning into the classroom (Reinders & Benson, 2017; Warner & Chen, 2017). Many language educators will likely agree with the view that "language teaching and learning has hitherto worked with an impoverished view of the world beyond the classroom" (Benson, 2017, p. 139). While many teachers undoubtedly do use Internet-related resources, designing activities around *YouTube* videos, for example, or assigning Webquests, they may not be encouraging students to seek out on their own L2 learning resources on the net. Using a student-centered approach to the integration of online L2 materials has the potential to increase student motivation as well as to contribute to their metacognitive and self-direction skills.

Having students themselves participate in the choice of learning materials, provides personal investment and potentially more language uptake (Oxford et al., 2014). At the

same time, students gain skills in searching and evaluating online language learning resources, an important step towards learner autonomy. Sundqvist & Sylvén (2016) discuss several examples of successful programs in which L2 instruction is based on learner selection of online texts and media. Enabling and encouraging the use of learner-contributed media contributes to the development of evaluation skills and critical literacy, crucial competencies for today's learners and citizens (Warner & Dupuy, 2018). In the process, the classroom can become a place in which "autonomy promoting skills can be learned in a collaborative environment" (Sockett 2014, p. 137).

The benefits of this approach are enhanced by having students share found resources, reflect on their usefulness together, and discuss advantages and disadvantage for language acquisition. This serves to bridge the gap between informal and in-class learning and "offers opportunities to foster indispensable digital literacy skills such as evaluation of resources concerning pertinence and credibility amongst less experienced learners" (Trinder, 2017, p. 410). Sharing found resources can be done in a variety of ways, however it is important to configure and enable that collaborative environment in a way that encourages development of a community of self-empowered and confident learners, with the teacher as facilitator. This moves instruction in the direction of distributed or decentralized control, changing the dynamics of the classroom, as well as the role of the teacher:

Teachers will need to incorporate pedagogical activities and strategies that facilitate sharing knowledge, skills and interests; in other words, they will need to encourage neighbor interactions. Teachers will also have to support redundancy by building on what the learners have in common and encouraging students to work with and learn from each other. A primary role of the teacher will be to provide coherence (Murray & Lamb, 2018, p. 259).

The "neighbor interactions" evoked here can be further expanded by having students post their curated resources online in an open environment such as a blog. The teacher's charge to "provide coherence" echoes Thorne's call for "structured unpredictability" in language learning environments (Little & Thorne, 2017, p. 17), with the structure being provided by the instructor and the online world supplying unpredictability and contextualization.

Project description

This paper describes an action research project which moves intermediate-level language instruction in this direction, namely using student-discovered and curated L2 learning materials, posted and discussed on class blogs. Select curated resources are enhanced with joint faculty-student authored explanatory materials (vocabulary glosses, cultural notes, grammar explanations, self-assessment exercises) and made into interactive online modules, available as OER (open educational resources). They are designed to function as "bridging activities" (Thorne & Reinhardt, 2008) and, together with other open resources (such as [COERLL](#), [OERCommons](#) or [OpenLearn](#)), as digital replacements for commercial textbooks currently in use (see Godwin-Jones, 2017).

This is a department-wide curricular initiative featuring "participatory action research" (Zuber-Skerrit, 2002) with the goal of enhancing instruction and increasing student motivation. All (seven) languages taught at the university are involved. The project seeks to address a perennial problem across languages in our department, namely the steep drop-off in enrollment in language courses after students complete the four-semester sequence that fulfills the foreign language requirement. This is at a point typically before students have gained a working, functional ability in the target language. Most students do not see the value in pursuing further language study, as they see little practical use for L2 proficiency in their personal, scholastic, or planned professional lives. They often have little or no "intent participation", i.e., the intention or vision of actually using what they are learning (Murphrey, Chen & Chen, 2005). Envisioning becoming part of a "community in which we might belong and use the information we are learning" (Murphrey, Chen & Chen, 2005, p. 98) may provide encouragement towards more meaningful participation in learning. This kind of investment

in learning is often associated with the concept of being part of an "imagined community" (Norton, 2001), one in which the learner is a competent and confident L2 user.

Part of the issue is that standard textbooks used in intermediate language courses do not supply the variety of content needed to address the different disciplinary interests of students enrolled. Texts are often "primarily thought of as vehicles for the learning of vocabulary, grammar, and writing systems" (Warner & Dupuy, 2018, p. 122). When presenting culture, textbooks "have become more and more like tourist brochures" (Kramsch, 2014, p. 308), with glossy photos, stereotypical topics, and quickly outdated information. Since most in-class work tends to be based on textbook materials, that restricts the substantial integration of online materials. The description of the typical English language classroom in Sweden given by Henry & Cliffordson (2017) will probably resonate with many: "Lessons are invariably constructed around commercially produced learning materials, teachers tend to adopt 'one-size-fits-all' approaches, and little use is made of digital technologies" (p. 720). Additionally, textbooks typically do not provide exposure to the evolving array of online genres for reading and writing. As a consequence, students do not develop the knowledge and skills to be informed consumers of L2 online texts. This is particularly problematic at a time in which most of the reading and writing in our students' personal and professional lives will be online (Chun, Kern, & Smith, 2016).

The project seeks to address these issues through replacement of traditional print textbooks with creation and adaptation of digital learning materials customized to student interest and proficiency levels. Students enrolled in the fourth-semester course are asked to find and curate potential online learning materials based on their own interests, curricular integration, comprehensibility (at CEFR A2/B1 levels) and re-usability (including usage rights). Most instructors have elected to have students conduct three curations over the course of a semester, with the final curation based on content related to their future academic or professional interests or career paths. The intent is to have students find and work with authentic L2 materials of real personal impact, in the process engaging their potential "transportable identities" they are developing as L2 users (Ushioda, 2011).

This affective dimension is enhanced through peer-to-peer collaboration in content selection and curation, adding a valuable social learning component. Curated sources are listed and described (in the target language) in a blog, allowing other students to view, comment on, and rate recommended resources. For some language programs, students were assigned to present one of their curated resources in class in the target language, followed by open discussion in class (in the students' L1) of the resources and their potential usefulness for language learning.

The highest-rated sites curated in the blogs are targeted for development as learning modules, to be used in subsequent cohorts of the course. Continuing the curation-development-deployment cycle on an ongoing basis supplies a regularly updated series of learning materials. While language textbooks try to appeal to young learners with, for example, texts of songs from contemporary pop artists, they are likely to be out of date as soon as published (Lieberman, 2017). Using online sources keeps content current. The modules development is done jointly by instructors and advanced students of the language. The self-contained modules (created with the open source authoring tool [H5P](#)) are interactive, web-based, and shared online. The project is currently being extended to incorporate teletandem partners for each language in the project. Tandem partners in the target languages will be working together (in split L1/L2 sessions) to explore learning materials. Since these are age peers, it is likely that shared generational interests will benefit both the selection and didactization of resources.

Preliminary results

WordPress blog sites were set up for each of the seven languages participating in the project. Each site was cloned from a template set up for the French section. The blogs therefore share a common structure but have been customized to align with each language

program's curriculum. Guidelines are provided to help students get started, as in the following from the German blog:

What kind of online resource?

To the extent possible, please post resources that...

- Could be usable in an intermediate German class, i.e. not too long, not too difficult, and, in your opinion, of sufficient interest to engage students (see the assessment rubric page)
- Fit in with topics typically covered at this level of German instruction (see categories below)
- Do not appear to violate copyright or fair use requirements, i.e. not clips from sources such as Disney feature films or the like

Students are asked to find resources that reflect topics representing thematic emphases for the course and to tag blog entries accordingly. For German, those topics ranged from advertising to work environments. In addition, students are provided with sample starting points for searching (target language media sites, search engines, children's video collections, the Goethe Institut, etc.), blog writing tips, and assessment rubrics. The latter include resource selection (cultural interest/significance, topic appropriateness, comprehensibility) and resource description (sufficient information, blog entry comprehensibility, language use). The instructor provided feedback on blog entries, both for content and language, inviting students to make revisions. In a student survey in the German class at the end of the semester, all students responded that the "instructions for doing the blog project were clear." In that survey, 83% of the students expressed a relatively positive assessment of the project (50% finding it "fun/interesting/instructive", 33% "so-so", 17% "indifferent" and 0% "I didn't like it").

Students in this initial pilot phase have collected and described resources from a wide variety of online sites. For the German site in Spring, 2017, that included personal blogs, YouTube channels, websites for children, news reports, travel logs, food descriptions, and scientific reports. This reflects the array of academic majors in that class that semester (5 students majoring in political science, 3 in history, 2 in psychology, and one each in engineering, homeland security, international studies, music, and philosophy). The topics ranged from typical German culture-related themes such as Oktoberfest and Beethoven to posts about racism in Germany and housing for immigrant families. The tag cloud (Figure one) shows that the top posts involved video and music. This reflects findings from the use of informal language learning materials, such as Sockett (2014), who found, in his study of learners of English in France, that the most frequently used resources were pop music and videos (TV series and films).



Figure 1: Tag Cloud from the German curation blog

The top-rated posts for German, according to student ratings and comments, illustrate the diversity of topics:

- Sauerkraut (*Deutsche Welle*, video)
- Beethoven (*Deutsche Welle*, text)
- Renewable energy (Podcast)
- Robots in the office (Tech web site)
- News report on theft of gold coin (article in *Der Spiegel*)
- Rap song (Casper — YouTube)
- Satirical song (Alligatoah — YouTube)

The German instructor worked with an advanced student in German during the summer to decide on the most appropriate curated resources to develop as modules. The first choice was a satirical song by Alligatoah, a German hip-hop band. The song, "Du bist schön" (2015 - "You are beautiful") was chosen for several reasons. It was very popular in Germany (20 million views on YouTube) and has significant social and cultural content, especially when considered together with the music video. The song satirizes the cosmetics and fashion industries, referencing the need to buy beauty products (including Botox), wear the latest designer jeans, and to keep slim. The text (and video images) depict Asian textile workers who "can't afford the designer jackets they make." Along with the topical content, there are a series of references to classical German culture, namely the Grimm fairytales and a well-known poem by Goethe ("Heidenröslein", 1771 - "Heather Rose"). In fact, the singer addresses "Spiegelein im Handy" ("Mirror on my cell phone"), referencing Snow White, while holding a selfie stick. Rapunzel and Sleeping Beauty are evoked as well. Some of the cultural references will be familiar to American students, inviting discussion of traditional cultural references/citations in popular culture in Germany (compared to USA). The socially critical elements allow for discussion of contemporary societal issues in USA/Germany, as well as expanding beyond cultural binarity to look at the transnational role of music (especially hip-hop/rap) in social and political contexts. This responds to calls in language instruction to expand beyond national in-group identities to international political consciousness (Dasli & Diaz, 2017).

With some vocabulary help, the text is accessible to students at the A2/B1 levels. The language makes use of constructions highlighted in the module, including informal imperative forms, "da" compounds, and code-switching between German and English. This module was developed as a prototype for the German site. For French, a song equally interesting from cultural and linguistic perspectives was chosen, namely "Je veux" ("I want") from Zaz. That song is satirical in nature as well, criticizing consumerism and self-indulgent displays of wealth. It also uses repeatedly a troublesome construction in French, the "en" particle/preposition. The modules based on the two songs supply glosses and explanatory notes, along with the original lyrics and music videos. They invite learners to reflect on the social messaging inherent in the texts, comparing perspectives offered to content in their own L1. The music videos supply the opportunity to explore multimodal messaging. The intent is to encourage students to explore how language manifests itself in different textual and visual genres and communicative contexts.

Targeted grammatical structures are presented through an inductive and scaffolded process. First, examples are drawn from the songs themselves, then additional examples are supplied, as used in a variety of contexts, taken from authentic sources including corpora. Using a usage-based view of language (Ellis, 2017), the learner is invited to detect patterns and, subsequently, to apply examined constructions in a set of interactive exercises. The HP5 framework allows for creation of a wide variety of self-correcting learning activities and widgets, including drag and drop matching, image hotspots, audio-based exercises, and memory games. Also possible is integration of social media functions such as twitter feeds and chat rooms.

Conclusion

The curation project strives to respond both to local programmatic and curricular concerns, as well as to the widely expressed need to integrate online resources into instructed language learning: "FL [foreign language] educational systems may need to switch to much more responsive roles, supporting learners' autonomous forays into globalized online spaces and providing spaces in which they can exchange information and experiences" (Benson and Chik, 2010, p. 75). The expectation is that this kind of genre-based multiliteracy approach will contribute to the preparation of students for the literacy practices common today (Elola & Oskoz, 2017).

The project also responds to the ongoing changes in the roles of teachers and learners:

Given the growing abundance of authentic L2 content found online, a teacher's primary role will no longer be to provide linguistic input and corrective feedback but rather to help learners curate their personalized learning experiences. In particular, students will increasingly take on roles once held by teachers. As a consequence, teachers will find themselves increasingly positioned as guides, tutors, and mentors (Blyth, 2017, p. 23).

The teacher plays in particular the role of "mediating students' awareness of the L2 learning affordances offered by the everyday technologies they use" (Ushioda, 2011, p. 207). Creating these connections may help reduce the gulf between L2 learning and life. Additionally, the expectation is that catering to student interest in materials selection will help motivate students to continue their language studies, either in formal settings or informally online.

References

- Benson, P. (2011). Language learning beyond the classroom: Access all areas. *Studies in Self-Access Learning Journal* 8(2), 135-146.
- Benson, P., & Chik, A. (2010). New Literacies and Autonomy in Foreign Language Learning. In M. L. Luzon, M. J. Ruiz-Madrid, & M. N. Villanueva (Eds.), *Digital genres, new literacies and autonomy in language learning* (pp. 63-80). Newcastle: Cambridge Scholars.
- Blyth, C. (2018). Immersive technologies and language learning. *Foreign Language Annals*, 51, 225-232.
- Chun, D., Kern, R., & Smith, B. (2016). Technology in language use, language teaching, and language learning. *Modern Language Journal*, 100(S1), 64-80.
- Cole, J., & Vanderplank, R. (2016). Comparing autonomous and class-based learners in Brazil: Evidence for the present-day advantages of informal, out-of-class learning. *System*, 61, 31-42.
- Dasli, M., & Diaz, A. R. (Eds.). (2016). *The critical turn in language and intercultural communication pedagogy: Theory, research and practice*. New York: Routledge.
- Elola, I., & Oskoz, A. (2017). Writing with 21st century social tools in the L2 classroom: New literacies, genres, and writing practices. *Journal of Second Language Writing*, 36, 52-60.
- Ellis, N. C. (2017). Cognition, Corpora, and Computing: Triangulating Research in Usage-Based Language Learning. *Language Learning*, 67(S1), 40-65.

Godwin-Jones, R. (2017). Designing an intermediate level language textbook for mobile access and learner autonomy. *Folio*, 17(2), 4–11.

Henry, A., & Cliffordson, C. (2015). The impact of out-of-school factors on motivation to learn English: Self-discrepancies, beliefs, and experiences of self-authenticity. *Applied Linguistics*, 38(5), 713–736.

Kramsch, C. (2014). Teaching foreign languages in an era of globalization: Introduction. *The modern language journal*, 98(1), 296–311.

Lieberman, M. (2017). 'What does Madonna have to do with French?' Inside Higher (Ed.) [online]. Available at: www.insidehighered.com/digital-learning/article/2017/07/19/updating-language-course-contemporary-oer-content

Little, D. & Thorne, S. (2017). From learner autonomy to rewilding: A discussion. In M. Cappellini, T. Lewis, & A. Mompeann (Eds.), *Learner autonomy and web 2.0*. (pp. 12–35). London: Equinox eBooks Publishing.

Murphy, T., Chen, J., & Chen, L. (2005). Learners' constructions of identities and imagined communities. In P. Benson & D. Nunan, (Eds.). *Learners' Stories: Difference and Diversity in Language Learning* (pp. 83–100). Cambridge: Cambridge University Press.

Norton, B. (2001). Non-participation, imagined communities, and the language classroom. In M. Breen (Ed.), *Learner contributions to language learning: New directions in research* (pp. 159–171). London: Pearson.

Oxford, R. L., Rubin, J., Chamot, A. U., Schramm, K., Lavine, R., Gunning, P., & Nel, C. (2014). The learning strategy prism: Perspectives of learning strategy experts. *System*, 43, 30–49.

Reinders, H., & Benson, P. (2017). Research agenda: Language learning beyond the classroom. *Language Teaching*, 50(4), 561–578.

Sockett, G. (2014). *The online informal learning of English*. New York: Palgrave Macmillan.

Sundqvist, P., & Sylvén, L. K. (2016). *Extramural English in teaching and learning*. London: Palgrave Macmillan.

Thorne, S. L., & Reinhardt, J. (2008). "Bridging activities," new media literacies, and advanced foreign language proficiency. *CALICO Journal*, 25(3), 558–572.

Tomlinson, B. (Ed.). (2016). *SLA Research and Materials Development for Language Learning*. London: Routledge.

Trinder, R. (2017). Informal and deliberate learning with new technologies. *Elt Journal*, 71(4), 401–412.

Ushioda, E. (2011). Language learning motivation, self and identity: Current theoretical perspectives. *Computer Assisted Language Learning*, 24(3), 199–210.

Warner, C., & Chen, H. I. (2017). Designing talk in social networks: What Facebook teaches about conversation. *Language Learning & Technology*.

Warner, C., & Dupuy, B. (2018). Moving toward multiliteracies in foreign language teaching: Past and present perspectives... and beyond. *Foreign Language Annals* 51, 116–128.

Zuber-Skerrit, O. (2002). A model for designing action learning and action researchprograms *The Learning Organisation*, 9(4), 143-149.

Nathaly Gonzalez-Acevedo

Universitat Autònoma de Barcelona, Barcelona, Spain

Nathaly.gonzalez@uab.cat

Micro-analysis of preschoolers' interaction: analyzing multimodal audiovisual data

Bio data



Nathaly Gonzalez-Acevedo is interested in very young learners' agency and the use of technology in the teaching and learning of EFL. She is interested in social semiotic multimodal analysis as a lens to approach data. She is currently a PhD candidate at the Universitat Autònoma de Barcelona where she has recently won a YERUN research mobility award.

Abstract

Technology and connectivity are highly present in society, education in both teaching and learning is being redefined in this sense. The availability of certain types of technologies in the classroom is still not a sign of effective use of technology in the teaching and learning. Designed as an action research including a data corpus of approximately 60 hours of video recordings, this research explores the most adequate design of technology-supported task to address key 21st century skills and foreign language learning in Preschool settings. The analysis of preschoolers' interaction data through a qualitative emic data-driven micro analysis is hence open as the information about the learner and the learning process is very rich and thus useful and reusable as information of learning process and as evidence of technology support efficacy in language learning. The solution to such complex analysis is an analysis that highlights the specific characteristics of each extract while maintaining a coherent line with the general research. On the one hand, accepting and embracing data information as useful and reusable, therefore, accepting emerging information and on the other hand designing an analysis and data presentation format that allows such openness while maintaining the coherence in the general research.

Conference paper

Introduction

It is no longer new that technology and connectivity are highly present in our everyday lives, education in both teaching and learning is being redefined to embrace the needs of a highly technology mediated society. The availability of certain types of technologies in the classroom is still not a sign of effective use of technology in the teaching and learning. Hence, research around the affordances of technology in teaching and learning has increased in the recent decades (Bavelier et. al. 2010; Dooly 2015; Dooly, 2018; Hill 2010). However, some studies argue that there is a lack of research around the effectiveness of the use of technology in the teaching and learning offering validity and reliability to learning designs supported by technology (Golonka et. al 2014). In language learning, especially in foreign language learning there is a high interest in the research on the use of technologies as its many affordances seem to bridge the gap between correct input and practice and

foreign language by providing spaces for learners to be in contact with high-quantity, high-quality and authentic input and practice of the target language. Furthermore, the characteristic portability of some technologies (such as tablets, cellphones, laptops) offers accessibility to input and practice in various places widening the physical learning spaces. The affordability, on the other hand, of some technologies has also accelerated the inclusion of such in learning and teaching spaces (Price et. al 2015). In short, technology support for language learning and teaching is of high interest for education given the characteristics of technologies; affordability, portability and accessibility, and by the affordances and quantity and quality of content it can provide, as well as, motivation (Flewit 2014) to both learners and teachers. Although, it is claimed that more evidence of its effectiveness is needed (Golonka et. al 2014). In the same line, the use of technology in Preschool settings has been argued to be a still unexplored area (Burnett 2010). In this sense this study covers the effectiveness of the use of technologies in the teaching and learning EFL, in Preschool settings providing useful insight into the language learning triggers, LLT, that inclusion of technology in task designs promotes.

This paper addresses the methodological challenges that analyzing preschoolers' interaction through a qualitative emic data-driven micro analysis presents as it is valuable information that is useful and reusable as evidence of technology support efficacy in language learning.

Research Design

This research is part of a PhD research interested in designing and analyzing EFL learning tasks that attend not only to the language but to the digital competences that preschoolers need to develop as members of a technology-mediated society. Designed as an action research, including three cycles of action, and a data corpus of approximately 60 hours of video recordings, this research explores, through its implementation, the most adequate design of technology-supported task to address key 21st century skills and language skills development. The last cycle of implementation highlights the relevance of collaboration and autonomy in group tasks as a trigger of co-construction of learning (Faloon and Khoo 2014). The data analysis is focused on identifying LLT during iPad and Beebot (robots) supported tasks.

The action research includes two main task designs and a third fruit of the action and the evidence found on the first two cycles. On a first design, iPads were used as a productivity tool in a collaborative task, the design was based on Lynch and Redpath (2014) research. Two groups of seven preschoolers, monitored by an assistant, had to model a given letter with plasticine and, using an app (Doodle), take a picture of that model to use it as a background on which to draw and object beginning with that letter. The group task was to cover a total of 26 letters which they managed to accomplish in four sessions. All the pictures were downloaded and pasted on a Power Point presentation by the teacher to create a book of sounds to which children added the recording of the corresponding phonetic sound to the letter. The learning aim of the task was to cover letter sounds correspondence (grapheme-phoneme) and EFL vocabulary.

The analysis demonstrated that the support of the adult was an obstacle in promoting 21st century skills such as collaboration, critical-thinking, problem-solving and decision-making in relation to the task and the iPad's use. In the second cycle, the support of the assistant was removed. The preschoolers had the same task, but a new app was introduced (My Story). In this cycle, the evidence highlighted that the collaboration was higher and that the preschoolers managed to solve problems and make decisions but that there was place for improvement as there was a clear individual orientation due to the individual use of the iPad (Hsin et. al. 2014). The third cycle was then modified as to provide only one iPad per group instead of one iPad per student and without adult's support. In the third cycle the preschoolers had the same task of covering 26 letters but just one iPad. In this last cycle the evidence pointed to a promotion of LLT and 21st century skills development in autonomous and collaborative language learning tasks supported by iPads.

The use of Beebots on the other hand, was designed for an oral language learning approach. The task aim was to code the Beebot, an infant's robot with seven basic functions (four cardinal directions, pause, stop and clear commands) to promote oral skills by creating a task in which one child had to orally ask another to code the Beebot to follow a certain path. The partner had to code the Beebot, to follow the path given, and then swap roles. The Beebot moved on a mat especially designed as a school, house, restaurant or neighborhood for the activity activating the use of specific vocabulary. The first cycle was found to be fruitful in the established use of the robot and the use of specific language structures but failed to promote innovative uses of the robot. The second cycle was then designed to present challenges to the preschoolers to promote the creative use of technology and 21st century skills through the use of oral English. The challenges presented to the children were a) to clean a water spill with the Beebots and b) to move the Beebots as a train (as a chain). This cycle highlighted how the challenges presented promoted critical-thinking, decision-making, task management and the orientation towards deciphering a coding language. There was no other cycle of action with the use of Beebots as presenting two challenges was more relevant in terms of data collection and learning.

A third action implemented after the first cycle was the creation of free-choice iPad use spaces. It was found that preschoolers expressed their *need* to just play with the iPad. The spaces were designed to give each preschooler an iPad for 30 minutes 2 days a week for free play.

The analysis methodology employed is a social semiotic multimodal analysis (Bezemer et al. 2012; Bezemer and Kress, 2017) in which relevant extracts of the data corpus are micro-analyzed. The micro-analysis process begins by viewing and examining all the data collected followed by the identification of relevant LLT interactions. Relevant extracts are viewed and examined several times and the most significant fragments of the extracts are then micro-analyzed. The analysis includes a recognition of the orchestration of modes, being used during the interaction by the participants, individually and by the group as a whole. Followed by the identification of each participant's use of the different modes, and its affordances, in isolation. The modes subject to analysis can correspond to gaze, gesture, vocalization (speech and oral communication), movement, artefacts' use and posture. The identified modes analyzed in each participant, often in fragments of a second, are then transcribed in a multimodal transduction (Bezemer and Mavers 2011). The multimodal transduction is then used to analyze the orchestration of modes and the emerging patterns. The audiovisual extracts are used as raw data to confirm and contextualize patterns and LLT that are made visible in the micro analysis. Thus, the micro-analysis is a back and forth relationship between raw data and the transcription that allows the researcher to appreciate micro relations in preschooler's interaction that make information about the learner and the learning process visible (see Duranti 2006; ten Have, 2007). The LLT are evident by making visible how participants communicate making use of different modes, and its affordances, orchestrating an efficient and successful communication that generates a transformative engagement.

Methodological Challenges and Solutions

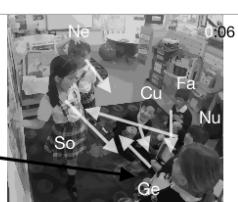
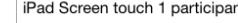
The current state of this research is the analysis and identification of the LLT available in the data. However, given the emic approach of the research and the openness of the data, in terms of usefulness and reusability, other salient patterns and triggers are emerging such as task management, participation framework, multilingual uses and power relations. A data corpus of approximately 60 hours of recordings is a large amount of data if such is micro-analyzed as is the case of this research adopting a social semiotic multimodal analysis in which interaction is analyzed mode by mode.

In the interactions analyzed very young learners interact naturally, therefore, orchestrating very dynamic interactions in which whole-group multiparty interactions can change rapidly to two or three-party sub-interactions and back again to whole-group multiparty-interactions adding to the research relevant information, although, high complexity to the

analysis. This characteristic of the data presents a methodological challenge as well as a significant amount of relevant information. In this sense, the analysis of open data although important in terms of relevance and quantity is highly complex in terms of Openness. Understanding, in this paper, open as data that has so much information that the solely identification of a single pattern for its analysis becomes a laborious work. Aligning to such complexity, the emic approach requires the researcher to be open to emergent patterns or information which means that the research is always open to new findings.

The analysis of preschoolers' interaction through a qualitative emic data-driven micro-analysis is hence open as the information is very rich and thus useful and reusable as information of learning, as a *transformative engagement* in interaction; as evidence of technology support efficacy in language learning; and as evidence of autonomy and collaborative orientation. On the other hand, in this study, the patterns that the data drives the researcher to are so diverse and rich that each salient aspect to be researched requires the researcher to design a sensible data transcription (Mondada 2007) without neglecting the data and without compromising the analysis coherence. It is in that sense a continuous parallel analysis; the analysis of data as information and the analysis of the treatment of data, two focus that interlace so closely that any slight modification in one derives in a modification of the other.

As an example, two extracts of different tasks will be analyzed presenting the openness of the data and the close relationship between data and transduction. It will be presented how some extracts give very clear evidence in less than 30 seconds and how in some others a longer extract, around 3 minutes, is needed and how such decision is based on the modes and its affordances.

Time in Seconds	Speech	Stills	Gaze							iPad (touch)
			Nu	Ge	So	Cu	Fa	Ne	Ta	
0:01	Fabian: (Vocal noise) ah!									
0:02	Fabian: Va a hacer la /aɪ.fel/ 'au.e/ Va a hacer la /tore rfel/ [(He) is going to do the /aɪ.fel/ 'au.e/ (He) is going to do the /tore rfel/]									
0:03										
0:04										
0:05										
0:06	Gerika: ((Vocal noise of surprise))									
0:07										
0:08	Gerika: Pues Sofia ***** [So Sofia: No, porque comença amb la /aɪ/ /ar/ i, ii té de ser amb la /i/ [No because it begins with /aɪ/ /ar/ and, andand (it) has to be with /i/]									
0:09										
0:10										
0:11										
0:12	Curiel: /aɪ/									
0:13										
0:14										
0:15										
0:16	Nerea: /ɪstr rfel/ si no es diria /ɪstr rfel/. [/ɪstr rfel/ if not it will be called /ɪstr rfel/]									
0:17										
0:18										
0:19										
0:20										
0:21										
0:22	Gerika: No! porque la /tore rfel/ comienza por la /aɪ/ [No! because the /tore rfel/ begins with /aɪ/]									
0:23										
0:24										
0:25	Gerika: Ho ha dit [(she) said it]									
0:26										
0:27										

Legend:

- iPad
- Participant
- Classroom (no fixed point)
- No information
- iPad Screen touch 1 participant
- iPad Screen touch 1 participant

Figure 1. Language learning trigger: incorrect beginning sound. (TBP: ICLL proceedings)

In figure 1, an extract of 27 seconds, the orientation of three participants is clearly towards showing disagreement on the word choice made by one of the group members. The preschoolers use different strategies to prove their point. This example shows how preschoolers are agentic during autonomous tasks interacting in *transformative engagements*. Furthermore, a LLT is visible in this extract, the task was to draw an object beginning with /i/. It can be seen how one member overtly comments that the iPad's manager choice for /i/ is Eiffel Tower showing disagreement to such choice for it being incorrect generating an interaction in which two other members overtly show agreement on the disagreement as, according to them, is not a word beginning with /i/. Hence, in the extract one of the members makes explicit that the word choice is not correct to which another member supports by making available a proof of how the word would be if it were to be a word beginning with /i/ *Istir Iffel* while another member ratifies the disagreement by directing herself to the iPad's manager and trying to dissuade him from using that word and at some point making reference to a power relation, not present, that has made explicit that such word is not possible. Thus, making visible a LLT in which there is a *transformative engagement* around the beginning sound of a word in EFL.

This example ratifies the close relationship between data treatment and data analysis by showing that the transcription is not just a translation into another *language* but part of the analysis itself. It is by showing how modes are orchestrated in interaction that preschoolers' agency is made visible, therefore a sensible and explicit presentation of data is part of the methodological challenge when micro analyzing multimodal data. In the extract, not only speech is relevant it can be noted how at salient moments in the discussion around the disagreement not only the three members holding the oral interaction are engaging but by interacting with gaze the other members take part in the interaction. This points to an interaction that includes the bystanders as active listeners and proves how, although not engaging orally, there are members engaging in the interaction. Gesture on the other hand, is seen as a salient part of the interaction as it marks intensity in the disagreement and in the ratification of the disagreement by two members of the group. This extract's transduction makes visible the laborious manual micro-analysis used and its affordances in making salient how through the use of technology, as a tool, in autonomous and collaborative tasks, language learning opportunities emerge.

On the other hand, different interactions lead to different transductions as is the example of a free-choice iPad space in which students are given free time to play individually (each student with an iPad). In figure 2, a different from figure 1, transduction can be seen. However, there is coherence between both. In both the highlighted information is the orchestration of modes during the engagement in interaction. In figure 1, the most visible evidence was found on speech not being the case of figure 2 in which the most visible mode is movement therefore requiring a transduction that emphasizes how the group moves during the interaction without failing to show, in any case, how the other modes are used in the interaction orchestration.

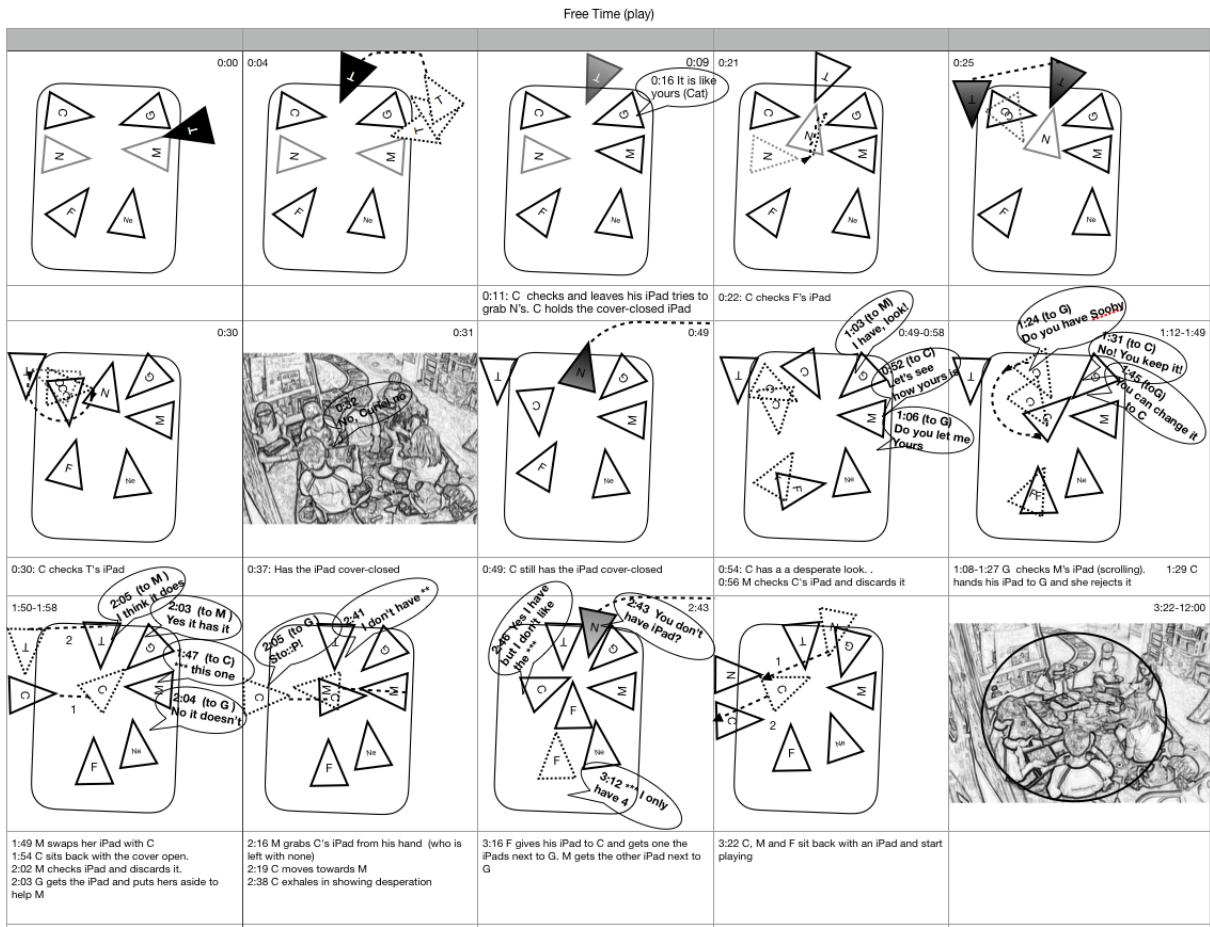


Figure 2. Free-Choice iPad: Group arrangement.

In figure 2, an extract of 3:22 minutes, a significantly longer extract than figure 1, the orientation of the group is to play with the iPad, a task design that provides time of free-choice play that generates an orchestration of own-interest and other-interest interaction between the students. It is visible how the alignment of the group changes from a more independent sitting arrangement to a more oriented to each other circle arrangement in a very natural and smooth orchestration of movement. Thus, showing that movement is an indicator of the group's orientation.

In figure 2, it can be observed how C is significantly moving in the carpet area and showing to the other members that he is not comfortable. It can be noted how G tries to help M to find an iPad with a specific app and stops her own play to check if the app is available on C's iPad. As C's iPad does not have the app that M is looking for there is no exchange of iPad and C's continues to feel uncomfortable. There is a dynamic orchestration of movement and gesture until F stops his own play and helps C to find the app he is looking for. Once C is feeling comfortable the group's sitting orientation smoothly arranges to circle arrangement.

Both of the extracts presented make visible different aspects of autonomous and collaborative technology supported learning spaces (Falloon & Khoo, 2014). It can be seen how the interaction itself guides the researcher to design a sensible, and adequate to the extract, transduction that makes visible the most salient aspect of the data. This treatment of information is hence as relevant and delicate as the information about the learner and the learning process it contains. Hence proving to be an open data. It also makes evident how there is coherence between different patterns emerging from the data respecting the difference between both but maintaining the coherence.

Conclusions

The main challenge that this study encounters is the management of a vast quantity of meaningful data that, given its characteristics and the research approach, has to be micro-analyzed manually by not only identifying a predetermined aspect but being aware of emerging patterns and new information. This implies that a) the analysis of data is not closed but open and alive; b) the presentation and transduction of data needs to be designed along the analysis and in order to make visible the research aim; c) coherence needs to be maintained throughout the analysis and the transductions; d) all the information about the learning process and the LLT needs to be treated as significant and as part of the orchestration of interaction.

This analysis proves how the data collected in this research is open given its reusability and usefulness as information about the learning process in autonomous and collaborative technology-supported tasks in preschools at the same time as it makes evident the challenges it presents. The solution to such complexity is a sensible analysis that highlights the specific characteristics of the extract while maintaining a coherent line with the general research. On the one hand, accepting and embracing data information as useful and reusable, therefore, accepting emerging information and on the other hand designing an analysis and data presentation format that allows such openness while maintaining the coherence in the general research.

References

- Bavelier, D., Green, C. S., & Dye, M. W. G. (2010). Children, Wired: For Better and for Worse. *Neuron*, 67(5), 692–701. <https://doi.org/10.1016/j.neuron.2010.08.035>
- Bezemer, J. & D. Mavers (2011): Multimodal transcription as academic practice: a social semiotic perspective, *International Journal of Social Research Methodology*, 14:3, 191-206.
- Bezemer, J., Jewitt, C., Diamantopoulou, S., Kress, G., & Mavers, D. (2012). Using a social semiotic approach to multimodality: researching learning in schools, museums and hospitals NCRM Working Paper Series. NCRM.
- Bezemer, J., & Kress, G. (2017). Continuity and change: semiotic relations across multimodal texts in surgical education. *Text & Talk*, 37 (4), 509-530. doi:10.1515/text-2017-0014
- Burnett, C. (2010). Technology and literacy in Early Childhood Educational Settings: A review of research. *Journal of Early Childhood Research* (2010). <https://doi.org/10.1177/1468798410372154>
- Dooly, M. (2015). Learning to e-function in a brave new world: Language teachers' roles in educating for the future. In A. Turula, B. Mikolajewska, & D. Stanulewicz (Eds.) *Insights into technology enhanced language pedagogy* (pp. 11-25). Bern/Vienna: Peter Lang.
- Dooly, M. (2018). "I do which the question": Students' innovative use of technology resources in the language classroom. *Language Learning & Technology*, 22 (1), 184-217. DOI 10125/44587
- Duranti, A. (2006). Transcripts, like shadows on a wall. *Mind, Culture, and Activity*, 13(4), 301-310.

Falloon, G., & Khoo, E. (2014). Exploring young students' talk in iPad-supported collaborative learning environments. *Computers and Education*, 77, 13–28.
<https://doi.org/10.1016/j.compedu.2014.04.008>

Flewitt, R., Messer, D., & Kucirkova, N. (2014). New directions for early literacy in a digital age: The iPad. *Journal of Early Childhood Literacy*,
<https://doi.org/10.1177/1468798414533560>

Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: A review of technology types and their effectiveness. *Computer Assisted Language Learning*, 27(1), 70–105.
<https://doi.org/10.1080/09588221.2012.700315>

Gonzalez-Acevedo, N. (tbp) Use of iPad for Autonomous and Collaborative EFL Learning Tasks: A Multimodal Analysis on EFL Learning Triggers. *Proceedings of 20th International Conference on Linguistics and Language Learning*

Hill, S. (2010). The millennium generation : exploring new forms of literacy. *Joournal of Early Childhood Literacy*, 10(3), 314–340. <https://doi.org/10.1177/1468798410372820>

Hsin, C.-T., Li, M.-C., & Tsai, C.-C. (2014). The Influence of Young Children's Use of Technology on Their Learning: A Review. *Educational Technology & Society*, 17(4), 85–99.

Lynch, J., & Redpath, T. (2014). "Smart" technologies in early years literacy education: A meta-narrative of paradigmatic tensions in iPad use in an Australian preparatory classroom. *Journal of Early Childhood Literacy* , 14(2), 147–174.
<https://doi.org/10.1177/1468798412453150>

Mondada, L. (2007) Transcript variation and the indexicality of transcribing practices. *Discourse Studies*, 9:6, 809-821

Price, S., Jewitt, C., & Crescenzi, L. (2015). The role of iPads in pre-school children's mark making development. *Computers and Education*, 87, 131–141.
<https://doi.org/10.1016/j.compedu.2015.04.003>

Ten Have, P. (2007). Doing conversation analysis. Sage.
References should be APA-style (Verdana 10).

Maki Hirotani, Kazumi Matsumoto* & Atsushi Fukada**

Rose-Hulman Institute of Technology, Terre Haute, USA

* Ball State University, Muncie, USA

**Purdue University, West Lafayette, USA

hirotani@rose-hulman.edu - kmatsumoto@bsu.edu - afukada@purdue.edu

A quantitative investigation of L2 learners' fluency using a learner corpus and fluency analysis tools

Bio data



Maki Hirotani is Associate Professor of Japanese in the Department of Humanities and Social Sciences at Rose-Hulman Institute of Technology. Her research interests include CALL, second language learning in speaking and writing, fluency, computer-mediated-communication, and telecollaboration.



Kazumi Matsumoto is Associate Professor of Japanese in the Department of Modern Languages and Classics at Ball State University. Her research interests include second language writing, fluency and Kanji recognition. She is actively involved in community engagement to promote Japanese teaching and learning.



Atsushi Fukada is Professor of Japanese and Linguistics in the School of Languages and Cultures and the Director of the Center for Technology-Enhanced Language Learning at Purdue University. His research interests include pragmatics, computational linguistics, language pedagogy, and CALL.

Abstract

In fluency research, objective measurements of temporal aspects of speech have been successfully used to investigate the characteristics of L2 learners' fluency and their fluency development. However, fluency has not been a widely accessible research topic to work on due to difficulty in collecting a large set of speech samples in a controlled fashion and cumbersomeness in obtaining objective measurements. This paper addresses one type of open data, a learner corpus. We discuss how we dealt with these issues and conducted fluency research using a learner corpus and application tools with the aim of promoting fluency research.

Conference paper

Introduction

The skill that a majority of foreign language learners regard as the most important to acquire is the ability to speak fluently (Harlow & Muyskens, 1994; Houston 2005; Rivera & Matsuzawa, 2007; Tse, 2000). It is, therefore, an aspect of language learning that language teachers and researchers pay special attention to. In particular, how to assess fluency is a major topic in second language acquisition. In the area of fluency research, objective measurements of temporal aspects of speech have been examined, and their usefulness as oral proficiency measures has been repeatedly demonstrated (Lennon, 1990; Riazantseva, 2001; Riggenbach, 1991; Skehan, 2009; Skehan & Foster, 2005). Researchers have successfully investigated the characteristics of L2 learners' fluency and their fluency development, although investigations have been mainly limited to certain languages, such as English (e.g., Lennon, 1990; Skehan & Foster, 2005) and Dutch (e.g., de Jong, Steinel, Florijn, Schoonen, & Hulstijn, 2013).

In spite of the promise that the previous research showed, fluency has not been a widely accessible research topic to work on due to the following two issues. The first issue has to do with cumbersomeness in obtaining objective measurements. It is possible to automatically obtain a very small set of objective measurements with Praat (www.praat.com) and Syllable Nuclei (de Jong & Wempe, 2009), but if one wishes to examine additional objective measures for one's study, a great deal of manual measurements and computations will be necessary. And some of this work may require a knowledge of acoustic phonetics and a certain level of computer processing skills. The second issue is related to difficulty in collecting a large set of speech samples in a controlled fashion. Oral datasets used in previous studies, therefore, tended to be small since they were usually collected by individual researchers. The small data size made it difficult to generalize their findings.

To address the first issue, in our previous research, we developed Fluency Calculator (Fukada, Hirotani, Matsumoto, & Masumoto, 2015a, 2015b), which takes annotated Praat data files as input and automatically calculates and outputs a large set of fluency measures. For the second issue, our previous research (Matsumoto, Hirotani, & Fukada, in press) used *Speak Everywhere* (speak-everywhere.com) to quickly collect a large set of speech samples. These methods should have made fluency research much more approachable. In this paper, however, we used a different approach to obtaining a dataset; we drew data from the International Corpus of Japanese as a Second Language (I-JAS), an open-access learner corpus. We will demonstrate how we conducted fluency research with the corpus, showing our most recent study as an example. Previous studies in commonly-taught languages showed that L2 learners at higher proficiency levels produce more language in a given time (Lennon, 1990; Riggenbach, 1991), use fewer pauses within a meaningful language unit (Ishizaki, 2004, 2005; Skehan, 2009; Skehan & Foster, 2005), and have different pausing patterns (Ju, 2010; Riazantseva, 2001). However, these findings were obtained on the basis of small datasets, sometimes without statistical analysis. In fluency research on Japanese, we know of no studies with a large enough dataset for statistical analysis to examine the characteristics of fluency of learners from different proficiency levels. This paper will demonstrate how to overcome these limitations.

This Study

The present study addresses one type of open data, a learner corpus, in research on learner oral fluency. We examined how L2 learners in two different proficiency groups differed in fluency characteristics, using excerpts from two oral production tasks in the I-JAS corpus. In this study, in addition to the measures that had been examined in previous studies, we examined AS-unit-related measures¹ to see how they would discriminate between different proficiency levels. The tasks were storytelling and interview, and the speech samples came from English-speaking novice and intermediate

learners of Japanese. For data analysis, we annotated oral samples with Praat and obtained objective fluency measures using Fluency Calculator. We examined which measures discriminated between the two groups well and which ones did not. Our research questions were as follows:

1. Were there significant differences in objective measures between the two proficiency groups?
2. If so, in which measures were the differences found?
3. Were there any task differences?

Methodology

Materials

Research dataset.

The International Corpus of Japanese as a Second Language (I-JAS) houses data collected from 405 learners of Japanese from 12 different language backgrounds and 50 native speakers of Japanese as of March 2018. Also included are the subjects' facesheets which provide basic information about the learners, including their L1 background, family members' L1, and Japanese language learning experience, such as how long and where they have studied. All learners took two language proficiency exams: JCAT (Japanese Computerized Adaptive Test) and SPOT (Simple Performance-Oriented Test), and their exam scores are also available on the facesheets. This makes it possible to create datasets consisting of different contrast groups (e.g., L1 vs. L2, novice vs. advanced, etc.) depending on the purpose of each study. All corpus participants completed six speaking tasks and six writing tasks.

Since it has been pointed out that task types affect L2 learners' fluency, in our study we used two different tasks: a debate portion of an interview task and a storytelling task. Previous research (Riazantseva, 2001) found that when comparing two proficiency groups, pausing pattern differences were more distinct in their unstructured task (dialogue task) than in their structured task (picture description). The interview represents an unstructured task, and storytelling a structured task.

Speaking samples. According to the facesheets, the speaking samples used in the present study come from 27 native speakers of American English enrolled in Japanese courses at a university in the US. The speakers were divided into two proficiency groups, novice ($N = 13$) and intermediate ($N = 14$) based on their SPOT scores.

Data Analysis

The speaking samples were downloaded as audio from the I-JAS corpus and annotated with Praat (<http://www.praat.org>). Then objective measures were calculated with Fluency Calculator (Fukada et al., 2015a, 2015b)².

Praat

Praat is acoustic analysis software that can analyze speech signals. Syllable Nuclei (de Jong & Wempe, 2008), a Praat script, automatically detects syllable nuclei, sounding parts (i.e., speech sounds), and silent parts. Although manual editing is necessary afterwards, the script saves a lot of time from annotation work. Manual annotation tasks include adding/deleting syllables, identifying and annotating filled pauses, AS-units, sentences, repeats, stutters, and self-corrections. Annotated speech data were saved to a data file.

Fluency Calculator

Next, we ran Fluency Calculator on the data files to compute objective measures. The current version of the software outputs 37 measures to an EXCEL file.

Measurements

Of the 37 measures, we used the following 11 measures (Table 1). Measures 1-3 are speed fluency measures, 4-10 are breakdown fluency measures, and 11 is a repair fluency measure. Measures 1-2, 4-6, and 11 have often been used in previous studies (e.g., de Jong et al., 2013; Ginther, Dimova, & Yang, 2010; Lennon, 1990). In addition to these measures, the present study also looked at AS-unit-related measures (Measures 3, 7-10 in Table 1), as several previous studies (Lennon, 1990; Skehan, 2009) looked at L2 learners' fluency related to language units. Previous research (Skehan, 2009) claimed that, while native speakers consider AS boundaries as a natural place to insert a pause, non-native speakers insert more pauses within an AS-unit. Thus, it was worth investigating measures within an AS-unit as well as between the units.

These measures are all automatically calculated by Fluency Calculator. The *t*-test was employed to compare between the two proficiency groups.

Table 1 Fluency Measures

Fluency aspect	Measure
Speed	<ol style="list-style-type: none"> 1. SPEECH RATE: $(\text{Total number of moras}^3) / (\text{Total response time}) * 60$ 2. ARTICULATION RATE: $(\text{Total number of moras}) / (\text{Speech time} + \text{Filled pause time}) * 60$ 3. SPEECH RATE WITHIN AS-UNIT: $(\text{Total number of moras}) / (\text{Total AS-unit time}) * 60$
Breakdown	<ol style="list-style-type: none"> 4. MEAN LENGTH OF RUN: $(\text{Total number of moras}) / (\text{Number of runs})$ 5. SILENT PAUSE RATIO: $(\text{silent pause time}) / (\text{Total response time}) * 100$ 6. SILENT AND FILLED PAUSE RATIO: $(\text{Silent pause time} + \text{Filled pause time}) / (\text{Total response time}) * 100$ 7. SILENT PAUSE RATIO WITHIN AS-UNIT: $(\text{Silent pause time within AS-unit}) / (\text{Total response time}) * 100$ 8. SILENT AND FILLED PAUSE RATIO WITHIN AS-UNIT: $(\text{Silent pause time within AS-Unit} + \text{Filled pause time within AS-Unit}) / (\text{Total response time}) * 100$ 9. RATIO OF SILENT-PAUSE-TIME-BETWEEN-AS-UNITS TO TOTAL RESPONSE TIME: $(\text{Silent pause time between AS-unit}) / (\text{Total response time}) * 100$ 10. RATIO OF SILENT-AND-FILLED-PAUSE-TIME-BETWEEN-AS-UNITS TO TOTAL RESPONSE TIME: $(\text{Silent pause time between AS-unit} + \text{Filled pause time between AS-unit}) / (\text{Total response time}) * 100$
Repair	<ol style="list-style-type: none"> 11. DYSFLUENCY RATIO: $(\text{Dysfluency time}) / (\text{Total Response Time}) * 100$

Results

The following two tables show the results of the *t*-tests in the storytelling and the discussion tasks.

Table 2 Two-tailed *t*-test Results on the 11 Measures in the Storytelling Task

Measure	Novice (N =		Intermed (N =		<i>t</i>	<i>p</i> (2-tailed)
	M	SD	M	SD		
1. SPEECH RATE	82.71	42.90	152.06	57.79	-3.52	.002**
2. ARTICULATION RATE	192.9	61.81	274.53	51.51	-3.74	.001**
3. SPEECH RATE w/i AS-UNIT	61.70	2.78	201.52	84.02	-3.2	.004**
4. MEAN LENGTH OF RUN	4.20	1.28	6.91	2.49	-3.53	.002**
5. SILENT PAUSE RATIO	57.90	9.48	45.88	13.59	2.65	.013*
6. SILENT & FILLED PAUSE RATIO	65.58	10.78	52.57	12.30	2.91	.007**
7. SILENT PAUSE RATIO w/i AS-UNIT	34.83	13.97	27.14	12.69	1.50	.146
8. SILENT & FILLED PAUSE RATIO w/i AS-UNIT	39.01	15.53	30.53	13.13	1.54	.140
9. RATIO OF SILENT-PAUSE-TIME-b/w-AS-UNITS TO TOTAL RESPONSE TIME	23.06	12.63	18.75	8.55	1.05	.314
10. RATIO OF SILENT-AND-FILLED-PAUSE-TIME-b/w-AS-UNITS TO TOTAL RESPONSE TIME	26.57	14.90	22.05	9.63	.94	.356
11. DSYFLUENCY RATIO	3.12	3.53	2.03	1.42	1.07	.295

p* < .05, *p* < .01

Table 3 Two-tailed *t*-test Results on the 11 Measures in the Discussion Task

Measure	Novice (N =		Intermed (N =		<i>t</i>	<i>p</i> (2-tailed)
	M	SD	M	SD		
1. SPEECH RATE	68.02	19.56	150.0	68.85	-4.14	.000**
2. ARTICULATION RATE	189.6	44.70	257.7	67.07	-3.08	.005**
3. SPEECH RATE w/i AS-UNIT	147.0	87.58	209.9	64.38	-2.14	.042*
4. MEAN LENGTH OF RUN	4.82	1.31	7.97	3.50	-3.05	.005**
5. SILENT PAUSE RATIO	62.92	7.78	42.36	18.66	3.68	.001**
6. SILENT & FILLED PAUSE RATIO	73.39	5.87	52.20	16.35	4.41	.000**
7. SILENT PAUSE RATIO w/i AS-UNIT	21.90	11.42	17.66	6.76	1.19	.245
8. SILENT & FILLED PAUSE RATIO w/i AS-UNIT	25.42	13.64	22.10	7.25	.80	.431
9. RATIO OF SILENT-PAUSE-TIME-b/w-AS-UNITS TO TOTAL RESPONSE TIME	41.02	13.26	24.70	19.16	2.55	.017*
10. RATIO OF SILENT-AND-FILLED-PAUSE-TIME-b/w-AS-UNITS TO TOTAL RESPONSE TIME	47.97	15.44	30.10	19.20	2.65	.013*
11. DSYFLUENCY RATIO	2.53	1.54	2.36	1.98	.26	.80

p* < .05, *p* < .01

Consistent with previous studies, we found the following: significant differences in all speed fluency-related measures (Measures 1-3) and breakdown fluency-related

measures (Measures 4-6) in both tasks and no significant differences in dysfluency ratio (repair fluency) in either task. For repair fluency, none of the previous studies (Freed, 1995; Lennon 1990; Rigganbach, 1991) found a correlation with subjectively rated overall fluency. In the present study, the results of the repair fluency measure did not distinguish between the two proficiency groups, either. Additionally, for measures not included in the previous studies, we found significant differences in ratio of silent-pause-time and ratio of silent-and-filled-pause-time-between-as-units to total response time in the discussion task.

Discussion

This section discusses the results by answering the research questions (RQ1-3).

RQ1. Were there significant differences in objective measures between the two proficiency groups?

Yes, we found significant differences between the two proficiency groups in the speed and breakdown fluency measures in both structured and unstructured tasks.

RQ2. If so, in which measures were the differences found?

Consistent with previous studies, two speed fluency measures (SPEECH RATE and ARTICULATION RATE) and three breakdown measures (MEAN LENGTH OF RUN, SILENT PAUSE RATIO, and SILENT AND FILLED PAUSE RATIO) showed significant differences between the two groups in both tasks. For AS-unit-related measures (i.e., Measures 3, 7-10 in Tables 2 and 3), we assumed the following based on the finding of the previous research (Skehan, 2009): As L2 learners improve their proficiency, they pause less within the language unit. As a result, their speech rate would increase within the unit. For speed fluency, we found that intermediate learners' speech rate within an AS-unit (Measures 3) was significantly higher than that of novice learners in both tasks. However, with regard to breakdown fluency, we had mixed results. None of the pause-related measures within the unit (Measures 7 and 8) distinguished between the two levels in either task. However, two pause ratio measures between the AS-units (Measures 9-10) differentiated the two levels in the discussion task. Although the results of AS-unit-related breakdown fluency measures were not consistent, we advocate that in addition to the commonly used measures (Measures 1-2, 4-6), we use AS-unit-related fluency measures (Measures 3, 9-10) as well for a better understanding of L2 learners' fluency.

RQ3. Were there any task differences?

We did not find noticeable differences in the measures that were often used in previous fluency studies (de Jong et al., 2013; Ginther et al., 2010; Lennon, 1990) between the two tasks: SPEECH RATE, ARTICULATION RATE, MEAN LENGTH OF RUN, SILENT PAUSE RATIO, and SILENT AND FILLED PAUSE RATIO. Thus, we conclude that regardless of the task types, these measures discriminated between the two proficiency groups equally well.

On the other hand, we found differences between the two tasks in the results of the breakdown fluency measures: particularly with respect to RATIO OF SILENT-PAUSE-TIME-BETWEEN-AS-UNITS TO TOTAL RESPONSE TIME (Measure 9) and RATIO OF SILENT-AND-FILLED-PAUSE-TIME-BETWEEN-AS-UNITS TO TOTAL RESPONSE TIME (Measure 10). That is, these measures showed significant differences between the two groups in the discussion task, but not in the storytelling task. Take Measure 9, for example. In the storytelling task, the difference between novice and intermediate was 4.31, whereas in the discussion task, the difference was far more pronounced (16.32). This can be naturally explained this way. While in the storytelling task learners have time to prepare a story to tell, in the discussion task they have to respond in real time to the interviewer's questions and responses. In other words, the discussion task is far more cognitively taxing than the storytelling task. This made the novice learners' speech significantly more intermittent than the intermediate learners, as seen in these measures.

Conclusion

In this paper, we have shown how we leveraged an open-access learner corpus to acquire a decent-sized dataset, and used fluency analysis tools to annotate and calculate a large number of objective measures. Although some manual labor is required in data analysis, the amount of cumbersome work can be lessened with the use of Praat and Fluency Calculator. Fluency Calculator outputs dozens of objective measures, and the output EXCEL file is ready to be submitted to various statistical analyses with statistical software. The current version of Fluency Calculator outputs 37 measures, and we can add more measures as necessary.

Our dataset for this study is not exactly large at 27 records, but this has to do with data availability in the corpus. The I-JAS Corpus is still growing, and there is a plan to boost the number of L1 English learners to 100 by 2020. Needless to say, our methodology will work just as well with 100 records.

It is our hope that the fluency tool we developed (i.e., Fluency Calculator) and a workflow we worked out for generating objective measures will make fluency a more accessible topic for applied linguistics researchers and stimulate more research in the area.

Notes

¹ AS-unit is defined as “a single speaker’s utterance consisting of an independent clause, or sub-clausal unit, together with any subordinate clause(s) associated with either” (Foster, Tonkyna, & Wigglesworth, 2000, p. 365).

² Fluency Calculator can be downloaded from the following site:

<http://tell.cla.purdue.edu/fluency-calculator/>. That site also explains how to add annotations with Praat in detail.

³ A mora is defined as “a unit of rhythm or timing, as the alternative term ‘beat’ suggests” (Vance, 2008, p. 117).

References

- de Jong, N. H., & Wempe, T. (2009). Praat script to detect syllable nuclei and measure speech rate automatically. *Behavior Research Methods*, 41, 385–390.
- de Jong, N., Steinel, M. P., Florijn, A., Schoonen, R., & Hulstijn, J. H. (2013). Linguistic skills and speaking fluency in a second language. *Applied Psycholinguistics*, 34, 893–916.
- Foster, P., Tonkyn, A., & Wigglesworth, G. (2000). Measuring spoken language: A unit for all reasons. *Applied linguistics*, 21, 354–375.
- Freed, B. F. (1995). What makes us think that students who study abroad become fluent? In B. F. Freed (Ed.), *Second language acquisition in a study abroad context* (pp. 123–148). Amsterdam: John Benjamins.
- Fukada, A., Hirotani, M., Matsumoto, K., & Masumoto, H. S. (2015a). Tools for generating objective measures for oral proficiency research. Retrieved from <http://tell.cla.purdue.edu/fluency-calculator/>
- Fukada, A., Hirotani, M., Matsumoto, K., & Masumoto, H. S. (2015b). Fluency Calculator [Computer software]. Retrieved from <http://tell.cla.purdue.edu/fluency-calculator/>
- Ginther, A., Dimova, S., & Yang, R. (2010). Conceptual and empirical relationships between temporal measures of fluency and oral English proficiency with implications for automated scoring. *Language Testing*, 27, 379–399.

- Harlow, L. L., & Muyskens, J. A. (1994). Priorities for Intermediate-Level Language Instruction. *The Modern Language Journal*, 78, 141–154.
- Houston, T. (2005) Outcomes assessment for beginning and intermediate Spanish: One program's process and results. *Foreign Language Annals*, 38, 366–374.
- Ishizaki, A. (2004). Sakubun ondoku ni okeru shokyū gakushūsha no pōzu no tokuchō: eigo bogo washa yon-mei no ōdan-teki shiryō o moto ni [Characteristics of pauses produced by novice learners in an oral reading task: based on the longitudinal study of four native English speakers]. *Acquisition of Japanese as a Second Language*, 7, 26–44.
- Ishizaki, A. (2005). How does a learner leave a pause when reading Japanese aloud? A comparison of English, French, Chinese and Korean learners of Japanese and native Japanese speakers. *Japanese-Language Education around the Globe*, 15, 75–89.
- Ju, I. (2010). Second language proficiency and pausing: Syllable duration and pausing in the oral reading of Japanese learners. *Bulletin of the Graduate School of Education, Hiroshima University. Part II*, 59, 229–238.
- Lennon, P. (1990). Investigating fluency in EFL: A quantitative approach. *Language Learning*, 3, 387–417.
- Matsumoto, K., Hirotani, M., & Fukada, A. (in press). Fluency Calculator niyori kōtōryūchōsei kyakkanshihyō no sanshutsu to sore o mochiita ryūchōsei no ōdanteki kenkyū [Computation of oral fluency objective measures by Fluency Calculator and a longitudinal study of learner fluency utilizing it]. In J. H. Lee (Ed.), *ICT x nihongo kyōiku: ICT ga tsukuru atarashii nihongokyōiku eno chōsen* [ICT X Japanese Language Education: A new Challenge ICT poses Japanese Language Education], Tokyo, Japan: Hitsuji Shobo Publishing.
- Riazantseva, A. (2001). Second language proficiency and pausing: A study of Russian speakers of English. *Studies in Second Language Acquisition*, 23, 497–526.
- Riggenbach, H. (1991). Toward an understanding of fluency: A microanalysis of nonnative speaker conversations. *Discourse Processes*, 14, 423–441.
- Rivera, G. M., & Matsuzawa, C. (2007). Multiple-language program assessment: learners' perspectives on first- and second-year college foreign language programs and their implications for program improvement. *Foreign Language Annals*, 40, 569–583.
- Skehan, P. (2009). Modelling second language performance: Integrating complexity, accuracy, fluency, and lexis. *Applied Linguistics*, 30, 510–532.
- Skehan, P., & Foster, P. (2005). Strategic and on-line planning: The influence of surprise information and task time on second language performance. In R. Ellis (Ed.), *Planning and task performance in second language* (pp. 193–216). Amsterdam: John Benjamins.
- Tse, L. (2000). Student perceptions of foreign language study: A qualitative analysis of foreign language autobiographies. *The Modern Language Journal*, 84, 69–84.
- Vance, T. J. (2008). *The sounds of Japanese*. Cambridge, UK: Cambridge University Press.

Yun-Hsuan Huang

Chia Nan University of Pharmacy and Science, Tainan City, Taiwan

ninisunday321@yahoo.com.tw

Accessible online advertisements as technical writing assistance: task design for ESP learning

Bio data



Yun-Hsuan Huang is an Assistant Professor of the Department of Applied Foreign Languages at Chia Nan University of Pharmacy and Science. She received her Ph.D. in Information and Learning Technology from National University of Tainan, Taiwan; ED.M. in Instructional Technology and Media from Teachers College, Columbia University, USA; and M.A. in Linguistics from Eastern Michigan University, USA. Her research interests include technology-enhanced language learning, ESP, ubiquitous learning, digital game-based learning, and creativity.

Abstract

Through flipping the traditional top-down material development planned by the teacher or publisher into the bottom-up material development planned by the learner, this study devised a task design activity asking 64 pharmacy students using online advertisements as references to design health or treatment related advertisements for their school. This task-based learning involved three stages: teacher-guided, learner-directed, and peer learning. Qualitative data from the advertisement texts created by the pharmacy students were collected in order to analyze which kinds of health or treatment related themes that the pharmacy students were interested in and which kinds of health or treatment related vocabulary and terms they selected and applied. This task design activity allowed the students to be autonomous and self-directed in the process, making open, accessible, and domain-specific Internet resources to be personalized materials-valuable information for the teacher and publisher in future material development. In addition, online advertisements can effectively serve as open and authentic materials as well as technical writing assistance for ESP learner-directed learning.

Paper

Introduction

Background and Problems

For advanced EFL college students, structured English contents in the published textbook cannot fully suffice for their learning needs but likely limit their learning capacities. In addition, domain-specific ESP textbooks for specific EFL groups like pharmacy students are scarce. Other than the textbook, thus, applying non-textbook ESP materials is a must for advanced EFL students, especially for pharmacy students who were the target learners that this study attempted to look at.

Internet resources are abundant, accessible, and useful if appropriately selected. Not only can teachers make use of Internet resources to design appropriate teaching

materials, but also students can explore open Internet resources to select desired learning themes and contents at their preferences.

The Rationale of the Study

The rationale of this study was that flipping the traditional top-down approach of developing textbooks/learning materials by teachers or publishers into the learner-directed bottom-up approach. Learners self-plan interested learning themes, select vocabulary and terms from open and accessible Internet resources, design their own learning contents at their preferences. Through this bottom-up approach, the data of learner-generated learning materials can in turn serve as the themes and contents for future textbook/material development by publishers or teachers.

Based on this rationale, therefore, this study devised an ESP learning activity of task design for pharmacy students. Figure 1 illustrates the rationale of this study.

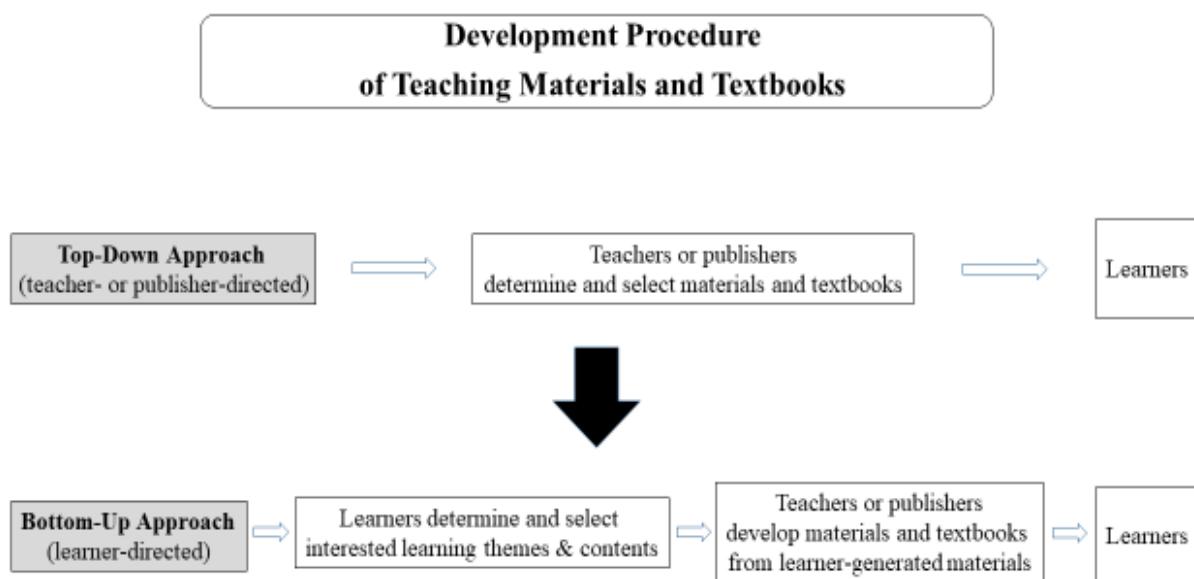


Figure 1. Development procedure of teaching materials and textbooks

The Purposes of the Study

The main purposes of this study were to analyze which kinds of health or treatment related themes the pharmacy students were interested in and which kinds of health or treatment related vocabulary and terms they selected and applied. All these provided valuable information of the task-based ESP learning using open Internet resources. Through the task design activity, whether this activity better promoted autonomous, learner-directed, learner-tailored, and personalized learning with open, accessible, and domain-specific Internet resources was examined and discussed.

Literature Review

Internet Resources

The Internet contains vast resources which can greatly benefit teaching and learning if appropriately applied. Many studies have investigated the issues of Internet resources in the area of language teaching and learning. These issues cover a wide spectrum such as students' self-selecting Internet materials related to their topics of interest to complete the learning project (Tseng, 2017), using Internet resources to develop extensive reading (Dao, 2014), the factors, experience, and effects of using Internet resources (Huang,

2017), EFL teachers' perceptions of online English language websites and resources (Shen, Yuan, & Ewing, 2014), using Internet resources in grammar teaching (Kruk, 2014), using Internet resources in the classroom (Agarwal, 2010), etc.

Studies have shown plenty of advantages of using Internet resources in language teaching and learning. For instance, the Internet provides authentic materials (Awada & Ghaith, 2014; Yaghoobi & Razmjoo, 2016) and free resources (Huang, 2017), enhances learner motivation (Kruk, 2014; Tseng, 2017), promotes autonomy (Agarwal, 2010; Kruk, 2014), renders spatial and temporal freedom as well as learner-directed learning (Agarwal, 2010; Song & Bonk, 2016), etc. Apparently, making good use of Internet resources greatly benefits language teaching and learning.

Task-based Learning

Task-based learning is grounded upon constructivist learning-learning by doing. Learners construct knowledge from the experience and through the interaction with the environment (Amineh & Asl, 2015; Živković, 2014). Adopting the task-based approach in language learning has been studied extensively. Examples of such applications involved listening (Brunfaut & Révész, 2014; Chou, 2016; Fuente, 2014), speaking (Hasan, 2014; Sarıçoban & Karakurt, 2016), reading (Freundlieb, Kovács, & Sebanz, 2018), and writing (Ruiz-Funes, 2015).

Task approaches in language learning have been found strengths. For example, open-ended tasks offer autonomous learning contexts and more freedom for learners to explore a particular topic (Lee, 2016). Tasks facilitate naturalistic learning, foster acquisitional processes (Rubdy, 1998), and engage learners in learning processes (Raith, 2013). In particular, task design provides authenticity in real life situations (Lai-kun, n.d.), and learner-generated content positively engage and motivates learners in L2 use during task performance (Lumber, Philip, & Nakamura, 2016).

From previous studies, it can be seen that learner-centered and -directed task design truly favors personalized and contextualized learning, and Internet resources well serve as open data for such personalized learning. However, using online advertisements as ESP task design resources for pharmacy students has not been explored yet. Therefore, this study aimed to delve into this area.

Methods

Participants, Procedure, and Instruments

This study involved 64 pharmacy students who took an English course offered for freshmen at a university in Taiwan. They were mostly advanced English learners.

The theme context of task design was that these pharmacy students were required to design a health product or an alternative treatment advertisement for their school which was famous for the pharmacy program in Taiwan.

This ESP learning activity of task design contained three stages: teacher-guided, learner-directed, and peer learning. Figure 2 illustrates the procedure of the task-design activity.

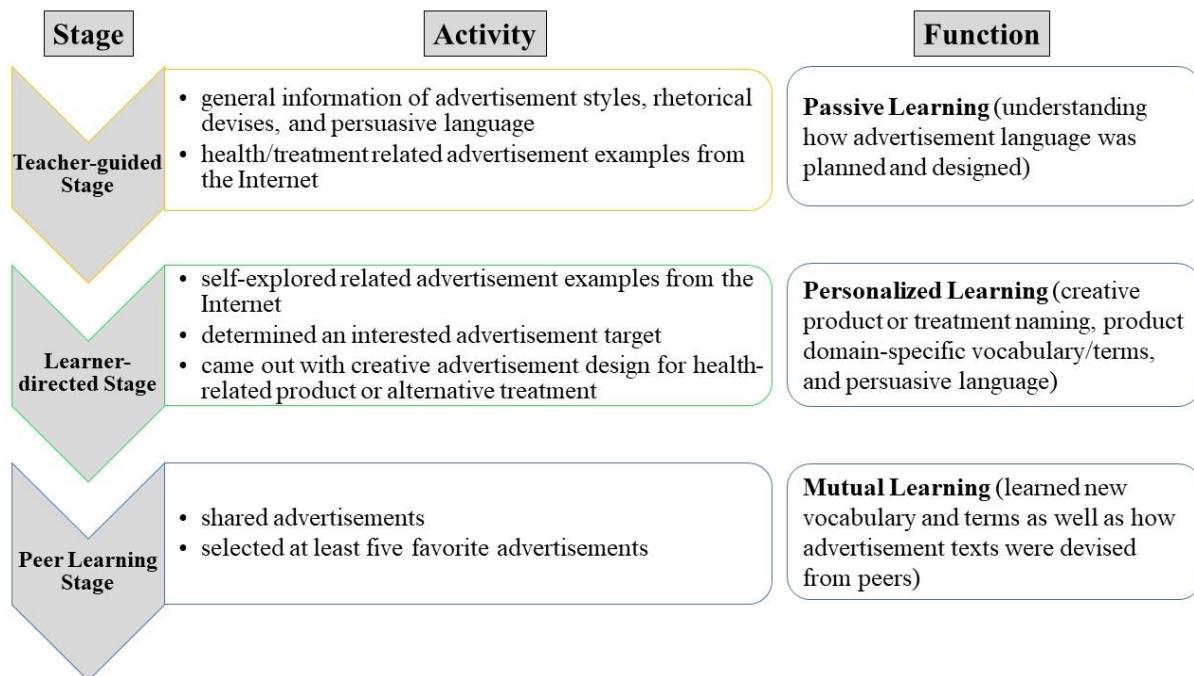


Figure 2. The procedure of the task-design activity

In the teacher-guided stage functioned as passive learning, general information of advertisement styles, rhetorical devises, and persuasive language as well as health or alternative treatment related examples from the Internet were introduced. In the learner-directed stage functioning as personalized learning, students at home self-explored related advertisement examples from the Internet, determined an interested advertisement target, planned an advertising scenario, and then came out with creative advertisement design for health-related product or alternative treatment. In this stage, students would experience personalized English learning processes of creative product or alternative treatment naming, product domain-specific vocabulary and terms, and persuasive language. In the peer learning stage functioning as mutual learning, each student shared their advertisement and selected at least five favorite advertisements. In this stage, students could learn new vocabulary and terms as well as how advertisement texts were devised from peers.

The instruments for the teachers and students were online health or alternative treatment related advertisements selected from the Internet.

Data Collection & Analysis

Data were collected from the advertisement texts that the 64 pharmacy students created for this task design learning activity. Qualitative data analysis were made in this study, which focused on two aspects: (1) health or treatment product categories through which to analyze which health or treatment related sub-domains these students were interested in to develop personalized ESP learning contents. (2) the students' advertising language from which to collect and analyze learner-generated health domain-specific terms, vocabulary, and expressions in their advertisement design.

Results and Discussion

Categories of Health or Treatment Related Advertisements

From the advertisements designed by the 64 pharmacy students for their school, there were 11 main categories of health-related advertisements identified. Table 1 lists the categories.

Table 1
Categories of Health-related Advertisements Designed by the Pharmacy Students

Categories of Health-related Advertisements	
1. Care product	facial mask, energy jewelry
2. Drinks	tea, health drink, milk tea, energy water, power drink
3. Formal treatment	psychological counseling
4. Alternative treatment	medicated spa, meditation, hot spring, milk bath, yoga, sauna
5. Health education	pharmacy program, class, lecture, wound care
6. Medicine	pain killer, Chinese herbal ointment, healthy medicine
7. Cleansing product	lavender soap, facial cleanser, shampoo
8. Health product	vegetable capsule, vitamin/multivitamin, slimming capsule, nutritious softgel
9. Health Foods	kimchi, instant noodles, yogurt, cafeteria
10. Health facilities	gym, air purifier
11. Oil	fish oil, sesame oil, essential oil

It can be observed that both drinks and alternative treatments respectively with six kinds of advertisements were the two categories that most of the students were interested in. Such results can be understood from the cultural perspective. Taiwanese people like drinks, especially tea and energy drinks, so the market of drinks is large and competitive. A variety of drinks are developed and advertised to be healthy. That can explain that why most of the students selected the health-related drinks as the advertisement theme. As for alternative treatments, hot spring, medicated spa, meditation, and yoga are popular in Asian culture, and thus more students were interested in dealing with these activities.

Health products and health foods were the secondary categories that the students liked. Health products like vitamins and slimming capsules are popular in Taiwan, so new kinds of health products are developed every year. As for health foods, foods which are claimed to contain healthy and nutritious ingredients are popular in Taiwan. Thus, the category of health foods was selected by more students as their advertisement theme.

Health Domain-specific Vocabulary and Terms

From the 11 categories of health-related advertisements, more than 180 health domain-specific vocabulary and terms were identified (see Appendix 1). These vocabulary and terms mainly involved organs, diseases/health problems, biological/chemical terms, symptoms, ingredients, treatment functions, effects, and so on.

Table 2 lists some examples of main categorized health-related vocabulary or terms used by the pharmacy students in their designed advertisements.

Table 2
Main Categories of Health-related Vocabulary and Terms Used by the Pharmacy Students in the Task Design

Categories of Health-related Vocabulary and Terms	
● Organ	intestine, gastrointestinal track, cardiovascular, respiratory track, etc.
● Disease/health problem	rhinitis, scald, migraine, diabetes, colon cancer, chronic arthritis, blood clot, etc.
● Biological term	metabolism, blood circulation, oxytocin, , secretion, derivative, immunity, ingestion/digestion, etc.
● Chemical term	triglyceride, amino acid, anti-oxidize/anti-oxidoant, hydrogen/ hydration, emulsifier, etc.
● Sympon	inflammation/anti-inflammatory, precipitation, melanin, chap, slash, constipated/constipation, etc.
● Ingredient	preservative, xanthophyll, selenium, magnesium, zinc, protein, collegan, lutein, red yeast rice, etc.
● Product or treatment function/effect	pesticide effect, relieve/relief, rejuvenate, revitalize, refreshed, mobility, etc.
● Treatment word	disinfect, medicated dressing, infrared therapy, etc.
● Medicine/medical term	ointment, bandage/band-aid, dispense, dose/dosage, , amend formula, capsule, etc.
● Health professional term	dermatologist, pharmacology, counseling

According to the students' preferred health related product or treatment themes, it is found that main categories of health-related vocabulary and terms were closely relevant to the ESP of the pharmacy field. These vocabulary and terms in chemistry, biology, medicine, ingredients, organs, health problems, symptoms, and treatments are all the ESP that pharmacy professionals need to know. Rather than from the teacher and textbook, these pharmacy students naturally and actively contacted the health-related ESP of their field through self-exploring interested health themes and constructing learning contents for their own purposes and preferences in the task design.

Constructivist, Personalized, and Contextualized Learning

This task of health-related advertisement design using open and accessible online advertisements fully involved constructivist, personalizing, and contextualized learning. Such a learner-directed learning process is illustrated in Figure 3.



Figure 3. The learner-directed learning process in the task design of health-related advertisement.

According to the learner-generated learning contents, it can be observed that these pharmacy students were interested in these health-related products or alternative treatments identified above. To develop the vocabulary and terms related to their

interested health products or alternative treatments, they self-explored related professional vocabulary and terms, determined which words to use and how those words were planned in the advertisement.

From more than 180 health domain-specific vocabulary and terms, these data showed that these pharmacy students were able to explore, discover, select, and plan the learning contents which they desired for their own purpose through constructivist learning.

Through the task design of health advertisements, they constructed their personalized and contextualized learning targets and materials. They not only experienced the autonomous learning but also owned the authorship of learning contents. In addition, peer sharing of personalized learning contents expanded personalized learning into collective learning capacities to its utmost. Furthermore, the original open and accessible data of online health-related advertisements can not only serve as task design materials for technical writing but also personalized learning resources. From the personalized learning data of individual students, it can be observed that which health domains individual students were interested in, which vocabulary and terms they actively acquired through task design, and how they planned creative advertisement language in this technical writing activity.

Conclusion

Usually, learning themes and materials are determined and designed by the teacher or textbook developers. Such teacher- or publisher-directed learning materials do not often meet learner needs and preferences. In this study, the role of planning and selecting learning themes, materials, and contents was handed to learners themselves. Some implications were gained from the bottom-up approach and study results.

Through this bottom-up learning process, in terms of learners, they were given the opportunities of autonomy and authorship to select, plan, and tailor their own learning materials, thus creating personalized learning of their own at their preferences, rather than generalized learning of the same learning contents. In addition, they were given full freedom to develop creativity during constructing their learning contents in task design. In terms of teachers and publishers, the personalized and contextualized materials generated by the learners provided specific and valuable information about the learner-theme preferences, levels of vocabulary and terms, learning processes, learning styles, individual strengths, weaknesses, etc. These personalized data can in turn serve as effective resources for future textbook development. More importantly, individual learners' learning information offers the teacher more understanding of the students in order to plan learner-centered ESP curriculum.

Nevertheless, there were two major limitations in this study. Due to the original course progress, only one task design activity was scheduled into the curriculum. Some more themes of task design activities can be planned into the curriculum to collect more data of various themes. This study focused on analyzing qualitative data. Quantitative data can provide more information from learner perspectives.

To sum up, this study applied open and accessible online advertisements for a task design activity. The study showed that online advertisements can effectively serve as open and authentic materials as well as technical writing assistance for ESP learner-directed learning. Flipping the traditional top-down material planning into the bottom-up personalized materials planning best targets learner preferences and needs. Collected personalized materials can serve as effective data for learner analysis for the purpose of textbook development. Future study will include more various theme-based task design activities as well as quantitative data from a survey to further examine learner perspectives toward personalized learning of task design.

Appendix 1

Vocabulary and Terms of Health-related Domains

inflammation	preservatives	inhibit	pharmacology	best companion
wrinkle	assortment	lipid	all natural	malnutrition
melanin	slash	combat	organic	neurosis
precipitation				
addiction	band-aid	pain killer	organism; microorganism	epochal
anti-oxidant	bandage	wrongful component	herb; herbal	dietary supplement
anti-oxidize	wound care	long pesticide effect	essence	red yeast rice
obese; obesity	mineral	dietary fiber	hydration	immune system
metabolism	xanthophyll	absorb; absorption	pulpy puff	bone density
cardiovascular	pack	ingestion	diabetes	chewable tablet
medicated bath pool	scald	intestine	species	B-complex
dermatologist	chap	defecate	therapy	acne
relief	ointment	contipation	disinfect	pimple
ingredient	external application	dose; dosage	iodine	rejuvenate
hydrogen	constipated	balanced meal	saline	revitalize
whitening	low calorie	dispensing	wipe	body scrub
cure	gastrointestinal track	amend	medicated dressing	infrared therapy
poison	higher fiber	scoop	chemical bath foams	sauna
capsule	amino acid	formula	coconut derivatives	migraine
cuddly	iron	eating pattern	emulsifier	skin aging
oxytocin	calcium	psychological counseling	essential oil	air purifier
vegan	selenium	bacteria	artificial essence	branched
discipline	magnesium	digestion	massage	nerve tissue
allergen	zinc	mobility	water column	blood clot
allergic	protein	technical extraction	modify	blood pressure
odor	grieved	colon cancer	skin complication	harmless natural treatment
flu	side effect	fatigue	chronic arthritis	
rhinitis	insomnia	refreshed	texture	
health guard	respiratory track	lutein	collagen	
antiinflammatory	infection	softgel	oil secretion	
blood circulation	triglyceride	supple	smooth fine lines	

References

- Agarwal, M. K. (2010). Internet-based language learning and teaching. *Innovative Infotechnologies for Science, Business, and Education*, 1(8), 3-7.
- Amineh, R. J., & Asl, H. D. (2015). Review of constructivism and social constructivism. *Journal of Social Sciences, Literature and Language*, 1(1), 9-16.
- Awada, G. M., & Ghaith, G. M. (2014). The impact of WebQuest and gender on writing achievement in professional business English. *Taiwan International ESP Journal*, 6(2), 1-27.
- Brunfaut, T., & Révész, A. (2014). The role of task and listening characteristics in second language listening, *TESOL QUARTERLY*, 49(1). Retrieved from <https://onlinelibrary.wiley.com/doi/full/10.1002/tesq.168>
- Chou, M.-H. (2016). A task-based language teaching approach to developing metacognitive strategies for listening comprehension. *International Journal of Listening*, 31(1). Retrieved from <https://www.tandfonline.com/doi/full/10.1080/10904018.2015.1098542?scroll=top&needAccess=true>
- Dao, T. N. (2014). Using internet resources for extensive reading in an EFL context. *Hawaii Pacific University TESOL Working Paper Series*, 12, 72-95.
- De la Fuente, M. J. (2014). Learners' attention to input during focus on form listening tasks: the role of mobile technology in the second language classroom. *Computer Assisted Language Learning*, 27(3), 261-276.
- Freundlieb, M., Kovács, A. M., & Sebanz, N. (2018). Reading your mind while you are reading-Evidence of spontaneous visuospatial perspective taking during a semantic categorization task. *Psychological Science*. Retrieved from <http://journals.sagepub.com/doi/abs/10.1177/0956797617740973>
- Hasan, A. A. A. (2014). The effect of using task-based learning in teaching English on the oral performance of the secondary school students. *International Interdisciplinary Journal of Education –February 2014*, 3(2), 250-264.
- Huang, H. Y. (2017). The influence of Internet resources on foreign language learners. *The ASEE Computers in Education (CoED) Journal*, 59-64.
- Kruk, M. (2014). The use of Internet resources and browse-based virtual worlds in teaching grammar. *Teaching English with Technology*, 14(2), 51-66.
- Lai-kun, A. C. (n.d.). Authenticity in task design for vocational English teaching and learning: A case study of a project-based learning module. Retrieved from [http://www.nus.edu.sg/celc/research/books/4th%20Symposium%20proceedings/20\).%20Annie%20Choi.pdf](http://www.nus.edu.sg/celc/research/books/4th%20Symposium%20proceedings/20).%20Annie%20Choi.pdf)
- Lumber, C., Philip, J., & Nakamura, S. (2016). Learner-generated content and engagement in second language task performance. Retrieved from <http://journals.sagepub.com/doi/abs/10.1177/1362168816683559>
- Lee, L. (2016). Autonomous learning through task-based instruction in fully online language courses. *Language Learning & Technology*, 20(2), 81-97, 2016. <http://llt.msu.edu/issues/june2016/lee.html>

Raith, R. (2013). Task-based teaching competences in individual learning environments. Retrieved from file:///C:/Users/Anita/Downloads/2185-2107-1-PB.pdf

Rubdy, R. (1998). Key concepts in ELT. *ELT Journal*, 52(3), 264-265.

Ruiz-Funes, M. (2015). Exploring the potential of second/foreign language writing for language learning: The effects of task factors and learner variables. *Journal of Second Language Writing*, 28, 1-19.

Sarıçoban, A., & Karakurt, L. (2016). The use of task-based activities to improve listening and speaking skills in EFL context. *Sino-US English Teaching*, 13(6), 445-459.

Shen, H., Yuan, Y., & Ewing, R. (2014). English learning websites and digital resources from the perspective of Chinese university EFL practitioners. *ReCall*, 27(2), 156- Sarıçoban & Karakurt, 2016)

Song, D., & Bonk, C. J. (2016). Motivational factors in self-directed informational learning from online learning resources. *Cogent Education*, 3(1). Retrieved from <https://www.tandfonline.com/doi/full/10.1080/2331186X.2016.1205838?scroll=top&needAccess=true>

Tseng, W-C. (2017). The effects of using Internet resources to learn English for specific interests in high school.(Doctoral dissertation). Retrieved from Texas Tech University Libraries. <https://ttu-ir.tdl.org/ttu-ir/bitstream/handle/2346/72740/TSENG-DISSERTATION-2017.pdf?sequence=1>

Yaghoobi, M., & Razmjoo, S. A. (2016). The potentiality of computer-assisted instruction towards ameliorating Iranian EFL learners' reading level. *Computers in Human Behavior*, 59, 108-114.

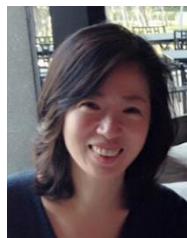
Yu-Wan Hung

Hsuan Chuang University, Hsinchu City, Taiwan

hung_catherina@hotmail.com

Fostering intercultural communicative competence through reflection upon telecollaboration data

Bio data



Yu-Wan Hung is an assistant professor in the Department of Applied Foreign Languages at Hsuan Chuang University, Taiwan. She obtained a PhD in CALL and a MA in TESOL. Her research interests include computer assisted language learning, computer-mediated communication, intercultural communicative competence, and communication strategies.

Abstract

The development of intercultural communicative competence (ICC) in computer-mediated communication environments has been emphasized in target language education worldwide due to the increasing demand of intercultural computer-mediated communication in today's globalized and digitalized world. As Taiwan is no exception to this world trend, this project aims to explore if Taiwanese learners of English could develop ICC through participation in intercultural telecollaboration along with reflection on telecollaboration data. Moreover, when there is a call for shift of ICC pedagogy away from the conformity of native speaker's cultural norms, this project also aims to empirically investigate and compare tandem and lingua franca telecollaboration in terms of ICC development. Both qualitative and quantitative data are being collected and analyzed to triangulate the results in this ongoing project. While the results of pre-test and post-test will demonstrate the development (or not) of ICC, qualitative analyses of interaction data are applied to understand the learning processes. The findings are expected to help understand how a pedagogical method (reflection on telecollaboration data) and learning content (learner-selected online authentic materials for intercultural practice and learner generated materials) could facilitate learners' acquisition of ICC. The explicit comparison between Tandem and lingua franca telecollaboration is expected to help educators make their pedagogical choices of telecollaboration. As this project is still in progress, the paper addresses challenges and issues associated with data use rather than draw any conclusions.

Conference paper

Introduction

Intercultural telecollaboration has been suggested beneficial for intercultural communicative competence (ICC) development (Chun, 2011; Chen & Yang, 2014; Jin, 2015; Liaw, 2006; Zeiss & Isabelli-García, 2007). Despite the great potential for ICC development, intercultural telecollaboration alone does not seem promising. Indeed, studies (e.g., Kaur, 2011; O'Dowd & Ritter, 2006) reported failed intercultural telecollaboration due to learners' inadequate ICC. Given that critical reflection on intercultural communication might help ICC

development (Lee, 2011; Ware, 2005), this project aims to explore the capabilities to help Taiwanese learners of English develop their ICC by reflecting on intercultural telecollaboration.

This project also aims to empirically investigate and compare two types of intercultural telecollaboration, namely tandem (reciprocal learning) and lingua franca¹⁹ telecollaboration, in terms of ICC development. Tandem telecollaboration has been highly valued in the field of target language acquisition due to the affordance of corrective feedbacks in authentic communicative context (Cziko, 2004). While most studies focused on the development of language competence in tandem learning, studies that specifically addressed the development of ICC are relatively fewer. On the other hand, with the increasing globalization, developing ICC in lingua franca communication is high in demand since it appears problematic for language learners to conform cultural norms of native-speaker of the target language in such communication (Alptekin, 2002; Byram, 1997; Chen, 2005; Kramsch, 2014).

Research Purpose and Questions

The research purpose of this project is twofold. The primary purpose is to understand the effectiveness and learners' perception of the pedagogical design of reflection on intercultural telecollaboration for ICC development. Another is to investigate the differences between Tandem and lingua franca telecollaboration in terms of the potential for ICC development and learners' perception, including preference or not to native speaker's cultural norms.

Specifically, this project attempts to answer the following research questions:

1. Does the design of relection on telecollaboration data foster ICC development?
2. Are there any differences between Tandem and lingua franca telecollaboration in terms of the potentials for ICC development?
3. How do learners perceive Tandem and lingua franca telecollaboration?

Research Design

This project adopts Byram's ICC model (1997) to design and investigate the development of ICC in intercultural telecollaboration. In this model, intercultural competence (IC) is composed of five elements, namely, attitudes, knowledge, skills of interpreting and relating, skills of discovery and interaction, and critical cultural awareness, and it has to work interactionally with communicative competence to become interculturally competent.

Based on Byram's model, three theme-based tasks/sections are designed to foster different aspects of IC development in intercultural telecollaboration. For each section, participants are encouraged to explore authentic online materials and negotiate discussion topics under the given theme with their intercultural partners in pairs via video calls. This task design is intended to encourage learner autonomy in non-institutional learning configurations to active positive learning conditions as in tandem learning (Thorne, 2010).

To meet the research purposes, participants in this project consist of Taiwanese learners of English, learners of Mandarin who are native speakers of English and Japanese learners of English. As the main purpose of this project is to understand how Taiwanese learners of English develop ICC in intercultural telecollaboration, Taiwanese learners have to go through the same task with learners of Mandarin and Japanese learner respectively to experience tandem and lingua franca telecollaboration. Moreover, They are required to reflect on each of their own intercultural interaction with help of a self-assessment form and then post a reflection report in English on a closed Facebook group where all participants can view and reply to each other's reports. These learner generated materials would then be used as in-class learning content.

¹⁹ It refers to a common language used by people from different first language backgrounds to communicate with each other. This common language is probably not native to all interlocutors.

Data Collection and Analysis

This project is still in progress. To address the research purposes, both qualitative and quantitative data are being collected and analyzed to triangulate the results. Pre-test and post-test will be applied to demonstrate the development (or not) of ICC. Apart from statistic comparison, qualitative analyses are applied to understand the learning processes. The findings are expected to help understand how a pedagogical method (reflection on telecollaboration data for ICC learning) and learning content (learner-selected online authentic materials for intercultural practice and learner generated materials) could facilitate learners' acquisition of ICC. Moreover, the explicit comparison between Tandem and lingua franca telecollaboration is expected to help educators make their pedagogical choices of telecollaboration.

Challenges and Issues

This project aims to investigate how participation in intercultural telecollaboration and reflection on interaction data could foster ICC development. Under the conference theme, this contribution highlights how learner-selected online authentic materials and learner generated materials are used as content for intercultural practice and ICC development. According to the feedbacks from two Taiwanese learners of English in the pilot study, they claimed group discussion on their intercultural interaction experience advanced their ICC development by revealing many unnoticed points during their intercultural interaction and in turn raising their intercultural awareness, while intercultural interaction itself could only help their ICC development to a very limited extent.

Despite its effectiveness, using intercultural data as learning content appears to cause some challenges and issues. While reflection reports may protect learners' privacy and make the data accessible and sustainable for discussion, the data have indeed pre-selected by the interlocutors. In addition, learners might need some training in writing reflection reports, especially when these reports are intended to be used as learning content. In the same vein, learners might benefit from training in selecting and using online authentic materials for their intercultural practice.

References

- Alptekin, C. (2002). Towards intercultural communicative competence in ELT. *ELT Journal*, 56(1), 57-64.
- Byram, M. (1997). Teaching and Assessing Intercultural Communicative Competence. *Multilingual Matters*.
- Chen, G.-M. (2005). A model of global communication competence. *China Media Research*, 1, 3-11.
- Chen, J. J., & Yang, S. C. (2014). Fostering foreign language learning through technology-enhanced intercultural projects. *Language Learning & Technology*, 18(1), 57-75.
- Chun, D. M. (2011). Developing intercultural communicative competence through online exchanges. *CALICO journal*, 28(2), 392-419.
- Cziko, G. A. (2004). Electronic Tandem Language Learning (eTandem): A Third Approach to Second Language Learning for the 21st Century. *CALICO journal*, 22(1), 25-39.
- Jin, S. (2015). Using Facebook to promote Korean EFL learners' intercultural competence. *Language Learning & Technology*, 19(3), 38-51.

- Kaur, J. (2011). Intercultural communication in English as a lingua franca: some sources in misunderstanding. *Intercultural Pragmatics*, 8(1), 93-116.
- Kramsch, C. (2014). Teaching foreign languages in an era of globalization: introduction. *The modern language journal*, 98(1), 298-311.
- Lee, L. (2011). Blogging: promoting learner autonomy and intercultural competence through study abroad. *Language Learning & Technology*, 15(3), 87-109.
- Liaw, M.-L. (2006). E-learning and the development of intercultural competence. *Language Learning & Technology*, 10(3), 49-64.
- O'Rourke, B. (2005). Form-focused Interaction in Online Tandem Learning. *CALICO journal*, 22(3), 433-466.
- Thorne, S. L. (2010). The 'Intercultural Turn' and Language Learning in the Crucible of New Media. In F. Helm & S. Guth (Eds.), *Telecollaboration 2.0 for Language and Intercultural Learning* (pp. 139-164). Bern: Peter Lang.
- Ware, P. (2005). "Missed" communication in online communication: tensions in a German-American telecollaboration. *Language Learning & Technology*, 9(2), 64-89.
- Zeiss, E., & Isabelli-García, C. I. (2005). The Role of Asynchronous Computer Mediated Communication on Enhancing Cultural Awareness. *Computer assisted language learning*, 18(3), 151-169.

Kristi Jauregi

Utrecht University, Utrecht, The Netherlands

k.jauregi@uu.nl

Telecollaboration at secondary schools: challenges of open data

Bio data

Kristi Jauregi is associate professor at Utrecht University (The Netherlands). Her main area of research is on CALL. She is particularly interested in studying the role that telecollaboration may play in enhancing the communicative competence, intercultural awareness and motivation of L2 students, and in reshaping the pedagogical beliefs, activities and roles of language teachers. She has initiated and coordinated different European projects (TeCoLa, NIFLAR & TILA).

Abstract

This paper presents the experiences around telecollaboration projects organised particularly at secondary schools in Europe within the framework of European projects carried out from 2008 to 2019: NIFLAR, TILA and the Erasmus+ project TeCoLa: Pedagogical differentiation through telecollaboration and gaming for intercultural and content integrated language teaching (www.tecola.eu). In our research we look at which factors contribute how to successful telecollaboration exchanges: the school context, the teacher's role, the tool being used, the telecollaboration task being carried out, the partner engagement and learners' expectations, attitudes and behaviour towards all of these. We use a mixed-method approach for gathering and analysing data: teacher and learner interviews, observation logs, surveys and telecollaboration recordings. The current research state is in progress.

Conference paper

Telecollaboration

Telecollaboration (TC) or "internet-based intercultural exchange between groups of learners of different cultural / national backgrounds set up in an institutional blended-learning context with the aim of developing both language skills and intercultural communicative competence" (Guth & Helm, 2012: 42), is becoming a well-known pedagogical activity in foreign language education, as a way to promote the development of intercultural communicative competence (Byram, 1997) particularly at universities. Most of the pedagogical experiences and research being carried out on telecollaboration take place at tertiary education and rarely at secondary education (Lin, 2015; Pol 2013). The reason for this might be found on the specific circumstances and conditions present in each educational context in terms of timetables, infrastructure and access, IT support and pedagogical focus. Students at university have few face-to-face classes per week (10 to 15 hours), follow few courses per term (2 to 6), most of them being related to their major; they have access to powerful computers and robust network connections and can rely upon a fairly good IT support service.

The situation at secondary schools is quite different. Learners have many face-to-face classes (an average of 24 to 30 hours per week), follow many different subjects (around 8 to 10); in some schools classes take 50 to 60 minutes, in others 90 to 120 minutes;

learners are mostly minors and care needs to be taken to preserve their privacy and safety. Moreover, many schools are not technologically well equipped and often lack the necessary IT support (Jauregi & Melchor-Couto, 2014). In these circumstances it is quite difficult to organise TC exchanges at schools, very particularly synchronous ones. Another challenge is that younger learners may be at a more basic level of language proficiency and less able to interact with L1 peers in a meaningful way. Integrating telecollaboration projects at secondary education is indeed challenging. Apart from the technological issues, teachers are overloaded with all kinds of tasks, have little or no time for innovation, while school boards do not seem to facilitate it. Innovation entails engagement and time investment on the teachers' part and the mindset at many schools still seems directed towards favouring traditional paths of language teaching: "We have always worked this way, why should we change?" Yet, there might be some advantages for secondary deployment. For example, younger learners may have a natural curiosity about other cultures and interest in innovative games that university-age learners might lack.

Another issue related to research on TC relates to the accessibility of research data. It is much easier for researchers to gather data from their students in their own institution, than carrying out research at secondary schools, which entails additional organisational steps which need to be mediated through the secondary school teacher, the school board and the parents.

The TeCoLa project

The Erasmus+ TeCoLa project (Pedagogical differentiation through telecollaboration and gaming for intercultural and content integrated language teaching www.tecola.eu 2016-2019) brings together experts in the fields of foreign language education, intercultural telecollaboration, teacher education, and technology mediated pedagogy from six countries (Belgium: University of Antwerp; France: Transit Lingua; Germany: Link; The Netherlands: Utrecht University²⁰; Spain: University of Valencia; and UK: Roehampton University). The main focus is on developing and testing innovative gamified telecollaboration approaches for secondary schools that address issues of learning diversity in intercultural and content integrated language learning and teaching. At the very heart of the learning process are authentic task-based interactions among peers from different socio-cultural, educational and language backgrounds using TC for communicating and collaborate internationally.

The European TeCoLa (www.tecola.eu) project seeks to undertake a facilitative and supportive role in the process of empowering secondary school teachers to lead digital innovation and internationalisation in their schools by introducing TC exchanges that contribute to make foreign language learning processes more meaningful and effective. This support is provided at various stages:

- (a) Teacher tailored online or face-to-face training. According to their specific needs, teachers learn about key pedagogical issues on TC to promote meaningful intercultural communication while respecting learner autonomy; they get familiar and experiment with a diversity of digital tools for TC; they learn to design and asses meaningful TC tasks and how to coach learners during their interactive work.
- (b) Coaching throughout the TC exchanges. Each TC partnership in TeCoLa gets a coach who helps teachers on pedagogical, organisational and technological issues: to find partners, organise exchanges, solve technological problems, design meaningful TC tasks and assess the exchanges (Jauregi & Melchor-Couto, 2018);

²⁰ Utrecht University is the coordinating institution.

- (c) Teachers can make use of the different tools available in the TeCoLa environment: the Moodle platform with interactive applications (BBB video communication rooms, chat, wiki, discussion forum, Padlet, Google collaborative tools accessed via Moodle) and the 3D TeCoLa virtual world with different cultural islands for purposeful communication in the specific target language.
- (d) IT support with videos and documentation about the tools, to be accessed via the website.
- (e) Task design models and materials in different target languages based on TBLT approaches, to be accessed via the website.

These resources used for teaching and learning carry an open copyright license and are made available at the Open Educational Resources (OER) Pool in the TeCoLa project site (<https://sites.google.com/site/tecolaprojectoer>). Users have the possibility to adapt the original work and the right to disseminate their adapted material free of charge as suggested by Unesco (2002). The quality, one of the criticisms to many OER materials, is taken care of in TeCoLa by engaging the TeCoLa team and the secondary school teachers in the process of providing feedback to improve them.

Research objectives: the challenge of open data

As to our research perspective, the context in which we work (secondary schools) and especially the target group we are dealing with (minors) demand a very careful approach to data gathering, analysis and dissemination processes. The environments where learners engage in telecollaboration activities are safe (the TeCoLa Moodle & Virtual World). Much effort is invested in trying to protect learners' privacy. Parents or caretakers are informed about the project and their consent is requested before their children engage in TC exchanges. Once the TC exchanges start, the research team is extremely cautious with the data gathering and analysing procedures always securing learners' privacy. In our case "open" referred to research data with minors is clearly problematic.

The TeCoLa project team seeks to know (1) whether pedagogically sound TC projects contribute to making language learning processes more meaningful and effective and (2) what the factors are that contribute to successful TC exchanges: what is the role of the school context, the teacher, the tool being used, the telecollaboration task being carried out, the partner, and the learners' expectations and attitudes towards the TC exchanges, the task, the tool and the telecollaboration partner. For language learning purposes, we look at learners' engagement (Storch, 2010) during the TC exchanges, and the emergence of language (and culture) related episodes (Swain & Lapkin, 1998; Canto et al. 2014) in those exchanges.

Based on previous experiences, particularly the European NIFLAR and TILA projects, we expect to be able to validate previous results and shed new light to TC exchanges at secondary schools:

1. Tasks including some gamification or game elements might be more motivating (Ryan & Deci, 2000), might stimulate more engagement (Storch, 2010) and might elicit more language and culture related episodes than other more information exchange based tasks. During the NIFLAR project the collaborative cultural contest-like task was the most motivating one for students, stimulated greater interaction and elicited most instances of negotiation of (cultural) meaning (Canto et al. 2014; Canto & Jauregi, 2017). Seemingly, in the TILA project, Dutch & British pupils carried out culture oriented collaborative games in German in a 3D virtual world, which had a clear positive impact on their motivation (Jauregi, 2016). Finally, from the 5 TC tasks that Finnish and Dutch pupils carried out in

English in the virtual world, the more fluent Dutch learners enjoyed the detective like tasks the most (Jauregi et al. 2015).

2. The specific affordances of tools may have an effect on learners' motivation and engagement. Jauregi and Melchor-Couto (2017) looked at the interplay between motivational issues (Bandura, 1997; Dörnyei et al. 2016; Ryan & Deci, 2000) such as self-efficacy beliefs, willingness to communicate and anxiety and the TC tool being used by 202 learners who had participated in TC exchanges either by chat or video communication. They found (1) a decrease in anxiety across conditions as sessions progressed, especially for those using chat; (2) similar values for self-efficacy items related to expressing themselves by the chat and the video communication groups; however, the chat group obtained higher scores for understanding than the video communication group. As to the pupils participating in 3D virtual worlds, they did very much enjoy the environment, for its game like character (Jauregi et al. 2015; Jauregi, 2016).
3. The speech partner's background (to communicate with a native speaker or another foreign language learner) and the language constellation in which the TC exchanges take place (Lingua Franca versus Tandem constellation), may have an effect on learners' motivation and their engagement in TC exchanges. In the study by Jauregi & Melchor-Couto, (2017) results showed no differences in self-efficacy values related to pupils' perception of their communicative skills in TC exchanges independently of whether they were interacting with native speakers or another foreign language learner (Lingua Franca constellation). However, the perception of their comprehension skills was greater among those learners participating in Lingua Franca constellations with other foreign language learners, than among learners interacting with native speakers. Finally, results showed that those communicating with native speakers were more positive about the learning potential of communicating with native speakers than those engaged in Lingua Franca constellations with foreign language learners.

The current research state is in progress. Pupils in Belgium, France, Germany, The Netherlands, Spain and the UK have started or are about to start their TC exchanges. In TeCoLa we use a mixed-method approach for gathering and analysing data. We are gathering diverse data through different instruments: teacher and learner interviews, learner diaries, observation logs, surveys and telecollaboration recordings/logs. These data is being gathered with extreme care and is anonymised to preserve pupils' privacy.

Conclusions

The TeCoLa project team is aware of the need to create and share qualitative resources and materials among teaching practitioners that work especially at secondary schools. The TeCoLa project team supports this initiative by making all resources (training and teaching materials) available to the foreign language teaching and CLIL community through the project's Open Educational Resources Pool. In so doing, the TeCoLa project team hopes to contribute to democratise and enrich educational sectors interested in knowing more about TC and in integrating these new pedagogical practices in their curriculum.

As to the research agenda, the TeCoLa project team is carrying out several case studies to try to shed some light on those factors that contribute to the success of TC exchanges carried out at secondary schools, a much neglected research context.

References

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.

Byram, M. (1997). *Teaching and Assessing Intercultural Communicative Competence*. Clevedon: Multilingual Matters.

Canto, S., de Graaff, R. & Jauregi, K. (2014). Collaborative tasks for negotiation of intercultural meaning in virtual worlds and video-web communication. In González-Lloret, M. & Ortega, L. (eds.) *Technology and Tasks: Exploring Technology-mediated TBLT*. Amsterdam /Philadelphia: John Benjamins. 183-213.

Dörnyei, Z., MacIntyre, P., & Henry, A. (Eds.) (2015). *Motivational dynamics in language learning*. Bristol: Multilingual Matters.

Guth, S. & Helm, F (Eds) (2012). *Telecollaboration 2.0. Language Literacies and Intercultural Learning in the 21st Century*. Bern: Peter Lang.

Jauregi, K. (2016). Telecollaborative games for youngsters: impact on motivation. In Papadima-Sophocleous, S., Bradley, L. & Thouësny, S. (Eds.) *CALL communities and culture*. Dublin: Research-publishing.net. (201-208). DOI: 10.14705/rpnet.2016.eurocall2016.562

Jauregi, K., Kuure, L., Bastian, P., Reinhardt, D. & Koivisto, T. (2015). Cross-cultural discussions in a 3D virtual environment and their affordances for learners' motivation and foreign language discussion skills. *EuroCALL 2015: Critical CALL*. Research-publishing.net. (274-280). ISBN: 978-1-908416-29-2 DOI: 10.14705/rpnet.2015.000345

Jauregi, K. & Melchor-Couto, S. (2018). The role of coaching in teacher competence development for telecollaboration. *ALSiC. Exchanging views on Telecollaboration (Special Issue)*. 20/2, 1-29.

Jauregi, K. & Melchor-Couto, S. (2017). Motivational factors in telecollaborative exchanges among teenagers. In Borthwick, K., Bradley, L., & Thouësny, S. (Eds.) *CALL in a climate of change : adapting to turbulent global conditions*. Dublin: Research-publishing.net. ISBN: 978-2-490057-04-7 (157-162)
DOI: 10.14705/rpnet.2017.eurocall2017.706

Jauregi, K. & Melchor-Couto, S. (2014). *Researching Telecollaboration in Secondary Schools: Challenges and Opportunities*. In Colpaert, J., Aerts, A. & Oberhofer, M. (eds.) *Research Challenges in CALL*. Antwerp: Linguapolis. ISBN 9789057284533; 191-199.

Lin, H. (2015). A meta-synthesis of empirical research on the effectiveness of computer-mediated communication (CMC) in SLA. *Language Learning & Technology*, 19(2) 85-117.

Pol, L. (2013). *Telecollaboration in secondary education: An added value?* Unpublished Master thesis. Utrecht University.

Ryan, R., & Deci, E. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.

Storch, N. (2010) Metatalk in a Pair Work Activity: Level of Engagement and Implications for Language Development, *Language Awareness*, 17(2) 95-114, DOI: 10.1080/09658410802146644

Swain, M. & Lapkin, S. (1998). Interaction and second language learning: Two adolescent French immersion learners working together. *The Modern Language Journal*, 82(3), 320-337.

Unesco (2002). Open and distance learnin. Trends, policy and strategy considerations.
Division of Higher Education. Paris.
<http://unesdoc.unesco.org/images/0012/001284/128463e.pdf>

Işıl Kacar

Middle East Technical University, Ankara, Turkey

isil@metu.edu.tr

The impact of an e-mentoring project on EFL pre-service teachers' professional development: a case study on challenges and benefits of online written feedback provision practices in the Turkish context

Bio data



Işıl Kaçar is the vice-chair of the Department of Foreign Language Education, METU, and the departmental practicum course coordinator. She is interested in ELF-aware teacher education, the integration of information technologies into EFL classes, and EFL pre-service teacher education. She is currently a project partner in an international e-mentoring project *Myschoolsnetwork*, a joint project with a group of Dutch colleagues from NHL University.

Abstract

In this qualitative case study, considering relatively scarce active learning and professional development opportunities provided for Turkish pre-service teachers in teacher education programs, an e-mentoring project, *Myschoolsnetwork*, was integrated into practicum courses at a state university. 30 prospective teachers enrolled in the practicum courses in their final year, were asked to provide online written feedback on the written work diverse learner profiles from various countries uploaded to this international online educational platform after a brief feedback training period. The active involvement in online written feedback provision helped pre-service teachers bridge the theory and practice divide in pedagogical terms. The study aimed to investigate the methodological challenges the pre-service teachers faced in the e-mentoring project, and the benefits of online written feedback provision practices on their professional development. The data was collected via pre-service teachers' online feedback samples, pre-service teachers' reflective journals, a questionnaire with open-ended items and focus group interviews and was analyzed via content analysis. The results indicated that pre-service teachers faced certain methodological challenges such as the provision of constructive, specific feedback with a feedforward mechanism, and adjusting the feedback language in line with the proficiency level of diverse learner profiles, but managed them relatively successfully. The study also indicated pre-service teachers' positive perceptions concerning e-mentoring practices and the contribution of the project to the professional development of these teachers.

Conference paper

Introduction

The studies regarding active learning and vocational learning outcomes in teacher education indicated that active learning methods have an influential impact on the prospective teachers' professional competencies (Canaleta, Vicent, Vernet and Montero, 2014; Niemi and Nevgi, 2014). Meyers and Jones (1993), Darling-Hammond (2006) and Kunter, Baumert, Richter, Voss, and Hachfeld (2014) pointed out that successful teacher education programs provide opportunities for the teacher educators to be not only active

learners but also knowledge producers. Prospective teachers need to learn how to make a good choice between the theory and practice (Niemi, Nevgi and Aksit, 2016). 21st century teachers are supposed to be those who construct knowledge from various sources, analyze and synthesize information, possess critical thinking, problem-solving and interpersonal skills and serve as a guide for the students' learning process, in line with Darling-Hammond (2006). They are expected to have a series of skills and abilities different from the norms established before and be ready to address diverse learner profiles with different ethnic and educational backgrounds. However, in Turkey the teacher education programs fail to provide adequate number of professional development opportunities for prospective teachers, particularly in the field of differentiated instruction, teaching diverse learner profiles, student evaluation and feedback provision (Seferoğlu, 2006; Yüksel, 2014). As far as the Turkish pre-service teachers in the English Language Teaching Departments are concerned, they are provided very restricted active learning opportunities in their third and final years. In their third year, the prospective teachers are engaged in a community service experience where they teach a group of English preparatory school students with a low level of proficiency in English at university while in their final year they are engaged in doing their practicum in state or private K-12 schools, where they have the opportunity to teach in an authentic classroom context. Thus, the teacher candidates in the Turkish context often fail to develop various skills and professional competencies needed for the teaching profession. In order to enable a smooth transition to the teacher role the prospective English teachers in the Turkish context are supposed to assume in the near future and facilitate their adaptation to the professional teacher community, it is necessary to provide them with learning and practice opportunities to develop their pedagogical, intercultural and digital competence. The findings suggest that students' experiences on the online learning platforms have an impact on the quality of their learning processes (Vonderwell and Turner, 2005). It is emphasized that online platforms promote students to take active responsibility for their learning in the learning process (Vonderwell and Turner, 2005). Hence, considering relatively scarce active learning and professional development opportunities provided for Turkish pre-service teachers in current teacher education programs, there is a compelling need to provide such opportunities through the integration of e-mentoring projects in the pre-service education programs. In the light of this concern, this study aims to investigate mainly two research questions:

1. Are there any methodological challenges the Turkish prospective teachers of English encountered while they were involved in an e-mentoring project called *Myschoolsnetwork*? If so, what are they?
2. Are there any benefits of e-mentoring practices on the professional development of prospective Turkish teachers of English? If so, in what way such practices are conducive to the professional development of the prospective teachers?

The Study Context

The e-mentoring project, *Myschoolsnetwork*, was integrated into practicum courses offered at the department of Foreign Language Education at a state university in Turkey. The practicum courses aim to familiarize prospective teachers with a new school environment in order to gain authentic experience at primary/secondary (state or private) schools under staff supervision, help them become aware of the similarities and differences between the theoretical aspects of language teaching and their practical applications, provide opportunities for them to practise planning lessons, adapting and developing materials and executing their plan and materials in a real classroom atmosphere under the supervision of a language teacher. They also aim to facilitate the development of a professional teacher identity via collaborative work.

Myschoolsnetwork is a safe and free online international educational platform that was founded to support digital literacy, global citizenship and authentic language learning in primary and secondary education. It is an interactive platform with an engaging layout

for the learners where each participant (both learners and teachers) has an online profile page and can send messages to one another and reply to them (See www.myschoolsnetwork.com/info). The diverse learner profiles in primary and secondary education contribute to this online international educational platform, ranging from primary and secondary school learners with a relatively low level of proficiency in English (mostly A1 and A2 levels) to university students with a relatively high level of proficiency (B2 and above). However, for research purposes, in this study the written contributions of primary and secondary school learners were taken into consideration.

Participants

Within the framework of the project, 30 Turkish prospective teachers of English, enrolled in the practicum courses in their final year in the undergraduate program in English Language Teaching. They were chosen via the convenience sampling procedures. The participants were asked to provide online written feedback for the written assignments diverse K-12 learner profiles from various countries uploaded to the online platform. Prior to their involvement in the project, the prospective teachers were given a three-hour training session where they were introduced to the project rubric, the aims of the project and were taught how to provide online feedback (the sandwich model), the points that they need to take into consideration while giving feedback. The participants were involved in hands-on feedback provision practice in the training session as well. They were provided with some sample learner contributions on the platform and were asked to provide feedback to them using the project rubric.

The participants were all Turkish senior students in their final year enrolled in an undergraduate program in English Language Teaching within an age range between 21 and 24. They possess C1 level proficiency in English. The written tasks with detailed descriptions, which are called 'events' were uploaded to the online platform in certain intervals by the site administrators. The target audience for the tasks were mostly A1, A2 level learners. The prospective teachers were responsible for providing written feedback for the contributions of the learners with diverse profiles on the online platform. The prospective teachers were each required to provide a total of 30 written feedbacks to a variety of English as a Second Language (ESL)/English as a Foreign Language (EFL) learners on the platform throughout the project. Prior to their involvement in the project, they did not have any prior experience of providing online written feedback provision for young learners.

Data Collection

The data was collected via the written feedback samples of the prospective teacher participants to the written event contributions of the young ESL / EFL learners on the online platform, the teacher candidates' reflective journals, a questionnaire with open-ended items and focus group interviews.

Data Analysis

The data was analyzed via the content analysis. The constant-comparison method was utilized in the data analysis. The codes and then themes were identified in the written feedback samples. The researcher, who is also the course instructor, collaborated with another colleague from the department, who is experienced in qualitative data analysis. The inter-rater reliability was found to be 85%, a sufficiently high level of agreement to qualify for inter-rater reliability. With the remaining 15% of the data, the raters rediscussed different interpretations related to the items they failed to agree on, striving to reach a consensus on a single interpretation.

Results and Discussion

Due to the open nature of the online data which is in the form of textual content, the prospective teachers posed certain methodological challenges. The findings indicated that the teacher candidates found it hard to adjust their language to that of the contributing young learners, which is in line with Arts, Jaspers ve Joosten-ten Brinke (2016). They

expressed having a hard time tailoring their feedback to the proficiency level of the young learners on the online platform. They reported that they tended to use a considerable amount of meta-language while providing their initial feedbacks as they were not familiar with how to produce simple and accessible explanations for the erroneous use of language points that young learners in the study made in their contributions. They also pointed out that they had not been involved in providing feedback to diverse learner profiles prior to their project involvement, which also accounts for the challenges they faced in this project, further reinforcing the findings of Yüksel (2014) and Seferoğlu (2006).

They indicated that while producing their initial written feedbacks, they spent a lot of time simplifying their language to be able to address the learners properly. In fact, a heavy reliance on the meta-language use was remarkable in the initial stages of the prospective teachers' feedback provision process. Another challenge that the teacher candidates faced in the feedback provision is providing specific feedback, which is in accordance with Ferguson (2009), Glover and Brown, (2006), Hernandez (2012), and Walker (2009). The majority of the teacher candidates, mostly in the initial stages of providing written online feedback process, failed to provide feedback in relation to the specific errors in the contribution; the feedback was mostly composed of general comments without any explicit reference to the mistakes that learners made. A further challenge that prospective teachers pointed out was providing constructive feedback (Arts, Jaspers ve Joosten-ten Brinke (2016)). They pointed out that it was quite hard for them to indicate the strong points of the contribution to the learners as it contained too many points to improve. Closely connected to this, they also expressed the challenge to address a variety of mistakes in the contribution. They found it hard to make a judgment as to which mistakes they should address in their feedback in the face of a lack of pedagogical knowledge pertinent to the interlanguage processes of the young learners, failing to enable learners to notice the gap in their zone of proximal development. They also had difficulty scaffolding the young learners on what they need to do to improve their future contributions (feedforward) by offering them new strategies, which echoes the findings of Arts, Jaspers ve Joosten-ten Brinke (2016). They mostly provided feedback at the task level, i.e. the strong and weak points of the contribution. In addition, they considered it challenging to monitor the progress of the writing skills development of the contributing learners as the learners do not write contributions to all the events on the online platform. Last but not least, the prospective teachers pointed out that they felt not being able to effectively cater for the interpersonal dimension of the feedback on the online platform as during the online feedback provision, they needed to heavily depend on the verbal comments.

Pre-service teachers reported adopting certain strategies to address the aforementioned challenges. They found it helpful to examine the event feedbacks provided by the previous and current Turkish and foreign e-mentors on *Myschoolsnetwork*. Establishing a positive and constructive tone in the feedback balancing both the strong and weak aspects of the contribution, also helped the pre-service teachers reduce the face-threatening risk of online written feedback to the minimum for young learners. They also reported avoiding metalanguage and trying to provide personalized, specific and detailed feedback providing simple explanations and offering specific suggestions for improvement. They indicated that the researcher who was also the course instructor, provided continual support and guidance for them throughout the project and she particularly checked their initial feedbacks very carefully, which helped them overcome the challenges with the formation and the wording of the feedback. The training program that the researcher, the course instructor, integrated into the study regarding the effective feedback provision strategies tailored for the target learner profile (i.e., the young learners) was reported to enhance the quality of the prospective teachers' feedback. There are certain specific features of the platform that help prospective teachers deal with these challenges. They reported, with the help of the message function on the platform, establishing a nice interpersonal relationship with the learners

by commenting on the latter's ideas and experiences in the contributions, adding emoticons to their feedback, asking open-ended questions to help them think more critically about the events or to motivate them to write more in their revised versions. They reported that the openness of the e-content they were authoring (i.e. their feedbacks to young learners) prompted them to be more careful about the accuracy, clarity and the accessibility of their feedbacks. Their online access to the previous contributions of the learners on the platform enabled them to get an idea about the language points learners had difficulty with and to tailor the level of feedback in line with specific learners, which addressed the concern related to the learners' zone of proximal development.

The e-mentoring project also made a valuable impact on the prospective teachers' professional development in different ways. To start with, the project participants enhanced their pedagogical competence, particularly in the field of providing online written feedback to young learners. Apart from that, they also developed their digital competence as they need to provide feedback on an online platform. Additionally, they improved their interpersonal competence by establishing a personal relationship with the young learners using the message function of the platform. Finally, the project involvement promoted the intercultural competence of the prospective teachers. While they were engaged in providing online feedback, they gained insights into cultural differences, various cultural traditions as well as developing intercultural understanding and intercultural sensitivity. The participants also indicated that the e-mentoring project provided them with a pedagogical learning opportunity to develop their feedback provision skills in an authentic learning environment.

Conclusion

The results of the study indicated that although prospective teachers involved in the project encountered a variety of methodological challenges in the e-mentoring project, they managed to overcome most of these challenges with the online feedback provision training session along with the continuous support and guidance of the course instructor, which also indicated the critical role of the teacher educator's role in the smooth management of the e-mentoring practices. The findings indicated that the involvement in the e-mentoring project contributed to the professional development of the prospective teachers. The project enhanced the prospective teachers' pedagogical, digital and interpersonal and intercultural competences by acting as e-tutors in an online educational platforms. It can be said that the study is likely to serve as a good example for other novice teacher education departments to address the gap between theory and practice in effective online feedback provision.

References

- Arts, G., Jaspers, M., and Joosten-ten Brinke, D. (2016). A case study on written comments as a form of feedback in teacher education: so much to gain. *European Journal of Teacher Education*, 39 (2), 159-173.
- Canaleta, X, Vicent, L, Vernet, D., & Montero, J.A. (2014). Master in teacher training: A real implementation of active Learning. *Computers in Human Behavior*, 31(1), 651-658.
- Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education*, 57 (3), 300-314.
- Ferguson, P. 2009. Student perceptions of quality feedback in teacher education. *Assessment and Evaluation in Higher Education*, 36, 51-62.
- Glover, C., and Brown, E. (2006). Written feedback for students: Too much, too detailed or too incomprehensible to Be Effective? *BEE-J*, 7.

Hernández, R. (2012). Does continuous assessment in higher education support student learning? *Higher Education*, 64, 489–502.

Kunter, M., Klusmann, U., Baumert, B., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, 105 (3): 805–820.

Meyers, C., & Jones, T.B. (1993). Promoting active learning: Strategies for the college classroom. San Francisco, CA: Jossey-Bass.

Niemi, H., & Nevgi. (2014). Research studies and active learning promoting professional Competences in Finnish teacher education. *Teaching and Teacher Education*, 43, 131-142.

Niemi, H., Nevgi, A., & Aksit, F. (2016). Active learning promoting student teachers' professional competences in Finland and Turkey. *European Journal of Teacher Education*, 39 (4), 471-490.

Seferoğlu, G. (2006). Teacher candidates' reflections on some components of a pre-service English teacher education programme in Turkey. *Journal of Education for Teaching*, 32 (4), 369-378.

Yüksel, H. G. (2014). Teachers of the future: Perceived teaching competences and visions of pre-service English language teachers. *International Journal of Human Sciences*, 11(2), 27-39.

Walker, M. 2009. An investigation into written comments on assignments: Do students find Them usable? *Assessment and Evaluation in Higher Education*, 34, 67–78.

Vonderwell, S. & Turner, S. (2005). Active learning and preservice teachers' experiences in an online course: A case study. *Journal of Technology and Teacher Education*, 13 (1), 65-84. Norfolk, VA: Society for Information Technology & Teacher Education.

Charlotte Larmuseau, Fien Depaepe* & Piet Desmet**

Imec-ITEC-KU Leuven, Kortrijk, Belgium

*Centre for Instructional Psychology and Technology (CIP&T), Leuven, Belgium

**KU Leuven KULAK, Kortrijk, Belgium

charlotte.larmuseau@kuleuven.be - fien.depaepe@kuleuven.be -
piet.desmet@kuleuven.be

Computer Assisted Language Learning: the role of students' characteristics and self-directed learning on students' learning gain.

Bio data



Charlotte Larmuseau is a PhD candidate at the faculty of Psychology and Educational Sciences at KU Leuven. She is also member of the interdisciplinary research group ITEC (imec-KU Leuven). Her PhD trajectory examines the effectiveness of online learning environments for complex learning: Learning Analytics for understanding learning processes.



Fien Depaepe is an assistant professor at the faculty of Psychology and Educational Sciences at KU Leuven. She is one of the principal investigators of the interdisciplinary research group ITEC (imec-KU Leuven). Her research expertise is related to the instructional design and educational effectiveness of technology-enhanced learning environments.



Piet Desmet is Full Professor in French & Applied Linguistics at KU Leuven (Belgium) and its KULAK Kortrijk Campus. He is an expert in computer-assisted (language) learning & educational technology. He leads the KU Leuven & imec research team ITEC and is scientific director of the imec smart education research program. He serves as vice-rector KU Leuven responsible for educational technology, KU Leuven KULAK Kortrijk Campus & KU Leuven Campus Bruges.

Abstract

Students' self-directed learning is crucial to their online learning success. Little is known about how students' characteristics influence their self-directed learning during computer assisted language learning and how this may affect students' learning gain. Accordingly, this study firstly investigates the influence of students' cognitive and motivational characteristics on students' self-directed learning in an online learning environment for learning French as a foreign language and secondly, it investigates the influence of students' self-directed learning on students' learning gain, taking into account their characteristics. Therefore, in this study an online course was developed in line with the four component instructional design model (4C/ID-model) consisting of authentic, problem-based learning tasks, supportive information, procedural information and part-task practice. Results based on Structural Equation Modelling (SEM) of 161 bachelor students reveal a significantly negative influence of prior knowledge on students' use of learning tasks and part-task-practice, whereas task value has a significantly positive influence on the use of learning tasks and supportive information. Additionally, the use of learning tasks, procedural information and students' prior knowledge significantly contributes to students' learning gain.

Conference paper

Introduction and theoretical background

Modern online courses for language learning should have the tendency to use rich learning tasks based on real-life situations, as those learning tasks can stimulate learners to integrate knowledge (e.g., grammar and vocabulary), language skills (e.g., writing) and attitudes (e.g., formal language; Compton, 2009). These complex learning tasks should allow learners to construct a sound knowledge base that can be transferred into unfamiliar situations (Lee, 2002; van Merriënboer & Sluijsmans, 2009). Obviously, not all learners can immediately be confronted with highly complex learning tasks as this might overwhelm their cognitive resources and might have other negative effects such as jeopardizing their motivation (van Merriënboer & Sluijsmans, 2009). Therefore, the instructional design of the online courses should allow for self-directed learning in a way that improves the ability of learners to perform, assess and select tasks that best fulfill their personal needs (Compton, 2009). An instructional design model for complex learning that claims to stimulate self-directed learning is the 4C/ID-model (van Merriënboer, 1997). Van Merriënboer (1997) claims that a powerful learning environment for complex learning should contain four interrelated components: (1) concrete, authentic, problem-based, whole-task experiences (i.e., *learning tasks*), (2) drill-and-practice- exercises to develop routine aspects of the learning tasks to a high level of automaticity (i.e., *part-task practice*) and two categories of support such as (3) comprehensive theory, mental models (i.e., *supportive information*) and (4) just-in-time information containing routine aspects of the learning tasks (i.e., *procedural information*).

Students' self-directed learning can be influenced by students' motivational and cognitive characteristics (Greene & Azevedo, 2007; Jiang, Elen & Clarebout, 2009; Tsuda & Nakata, 2013). An important learner characteristic that influences self-directed learning is students' prior knowledge. The main reason for this is that the whole task approach can be very challenging. This approach not only requires learners to acquire domain specific skills but also confronts the learner with the need to assess his or her performance and select future tasks or support in order to improve their performance which can induce high cognitive load (Moos & Azevedo, 2008; van Merriënboer & Sluijsmans, 2009). In addition to cognitive characteristics, motivational aspects are prerequisites for self-directed learning (Chen & Jang, 2010; Lin, Zhang, & Zheng, 2017; Pintrich & De Groot, 1990). There is evidence that self-efficacious students participate more readily, work harder and persist longer when they encounter difficulties than those who are uncertain about their capacities (Greene & Azevedo, 2007; Mills, Pajara & Herron, 2007). Additionally, research indicates that students who perceive a high task value enjoy learning the content and understanding of new things (Martens, Gulikers & Bastiaens, 2004; Zimmerman, 2000). Taking both cognitive and motivational characteristics into account, this can imply that for instance, one student might quickly proceed from learning task to learning task, while another student might select part-task practice to rehearse routine aspects of the learning task or consult supportive information out of sheer interest.

In this study a 4C/ID-based online course for learning French as a foreign language was developed. As this online course contains four different components, self-directed learning within this study, refers to students taking initiative in diagnosing their learning needs by identifying appropriate resources (i.e., one of the four components), evaluating their outcomes (i.e., scores on learning tasks) and implementing learning strategies (e.g., consulting additional exercises or support in order to improve their results). We hypothesize that (1) students' cognitive and motivational characteristics can have an influence on their self-directed learning in a 4C/ID-based online learning environment for learning French as a foreign language and (2) that their self-directed learning can influence learning gain.

Methodology

The administration procedure of the study consisted of two administration sessions. The first administration session started with a pretest, an introduction of the online course and an additional questionnaire measuring task value and self-efficacy. The students were asked to use the online course at home during two weeks. After the intervention of two weeks a second administration session took place where students received a posttest. Participants were 161 first year Psychology and Educational Science students. The majority of the students were female (91%). The average participant was 20 years old ($SD = 2.92$).

The online course in the present study teaches French as a foreign language. The level of difficulty was aligned with the level that students in the Flemish part of Belgium are expected to reach at the end of the secondary school, namely, level B1 of the Common European Framework of Reference. The online course is designed based on the 4C/ID-model and consist of four task classes containing different learning tasks sequenced from simple-to-complex. The learning tasks are based on authentic situations. One of the four topics being dealt with is *ordering food in a restaurant*. A main goal of the online course related to that topic, is that students should be able to have a fluent conversation at a restaurant. In order to have a fluent conversation, students must master grammar (e.g., prepositions) vocabulary (e.g. food vocabulary), language skills (e.g., listening and replying in an adequate way) and attitudes (e.g., using formal language based on the situation). While working on the learning tasks, students could decide to consult additional part-task practice exercises (e.g., when they realize they are lacking routine knowledge), supportive information containing the non-routine aspects of the tasks (e.g., when they don't understand the grammar) and/or procedural information (e.g., refreshment of grammar rules). The supportive information, procedural information and part-task practice were non-embedded which implies that students had to consult these components on their own initiative. Learning tasks were partly non-embedded, since students were allowed to make various attempts. Nevertheless, they were also partly embedded since learning tasks were clustered in a task class in a predefined simple-to-complex order.

Measurement instruments

To measure the learning content a quantitative paper-and-pencil instrument on French was used as pretest (i.e., *prior knowledge*) and posttest (i.e., *students' learning gain*). The instrument consists of 60 items and focuses on knowledge (e.g., "form the imperative") and skills (i.e., "write down how you would explain the road to someone"). The level of difficulty of the test was B1 of the Common European Framework of Reference (Evens, Elen & Depaepe, 2017). The instruments' reliability was explored by calculating internal consistency i.e., Cronbach's $\alpha = .90$ for the pretest and Cronbach's $\alpha = .89$ for the posttest (Cuieford, 1965).

For this study we used the constructs self-efficacy (5 items; 7-point Likert-type response format) e.g., "*I expect to do well in this course*", and task value (6 items) e.g. "*It is important for me to learn the course content*", of the motivation section from the Motivated Strategies for Learning Questionnaire (MSLQ; Duncan & McKeachie, 2005). Construct validity was checked by conducting a confirmatory factor analysis (CFA). The factor loadings from the latent variable constructs were all significant, had standardized values ranging from .74 to .93 and an average variance explained (AVE) of .76 for self-efficacy and .62 for task value. The Cronbach's Alpha for self-efficacy was $\alpha = .94$ and for task value $\alpha = .84$. This verifies that the two measurement models of self-efficacy and task value were each measured well in the current data (Cuieford, 1965; Khine, 2013).

Information of students' *use of the four components* of the 4C/ID model was collected by tracking students' activity, i.e., registration of views and interaction by the Moodle learning management system (LMS) during two weeks for each component. All data were

collected on an aggregate module level and afterwards merged, based on the use of the different components.

Results

Students had an average of 50.97% ($SD = 18.17$) on the pretest and an average of 64.59% on the posttest ($SD = 15.88$). The average student replied "neutral" in terms of motivation ($SD = 1.13$) and self-efficacy ($SD = 1.10$). An overview of the average activity of the four components and the amount of students that consulted the components can be found in Figure 1. The average time spent on using the online learning is 66 minutes ($SD = 27.34$, *min.* = 10.44 minutes, *max.* = 151.43 minutes or approximately 2.5 hours).

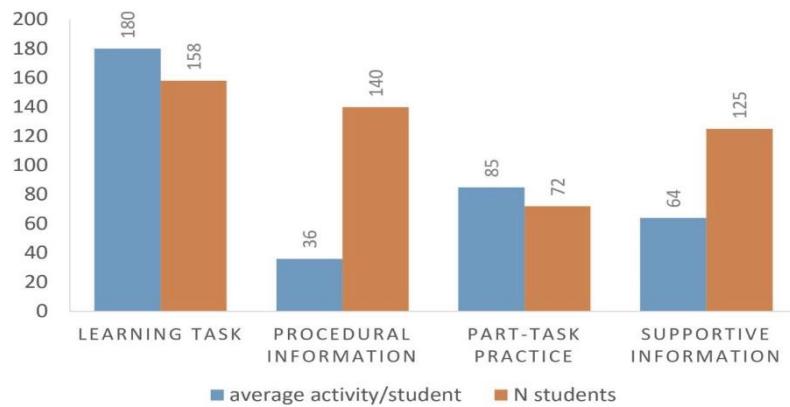


Figure 1. The use of the four components

Structural equation modeling (SEM; $N = 161$) was conducted in order to firstly, investigate the influence of students' cognitive (i.e., prior knowledge) and motivational (i.e., task value and self-efficacy) characteristics on the use of the components. And, secondly, to investigate the influence of the use of the components on students' learning gain, controlled for student-related characteristics (i.e., prior knowledge, task value and self-efficacy). For the missing values a two-stage approach was applied. This approach obtains a saturated maximum likelihood (ML) estimate of the population covariance matrix and then uses this estimate in the complete data ML fitting function to obtain parameter estimates (Saveleij & Bentler, 2009). Lavaan (Rosseel, 2012) converged normally after 59 iterations. The hypothesized model, provided an adequate fit to the given data [$\chi^2/df = 155.56/99 = 1.4$; SRMR = .05, RMSEA = .06, CFI = .96, TLI = .95] (Khine, 2013).

Figure 2 gives an overview of the results of the research model. Significant influences of students' characteristics were found on the use of the components, more specifically, students' task value influences the use of learning tasks ($\beta = .21$, $p <.05$) and supportive information ($\beta = .22$, $p <.05$). No significant relationships were observed between students' self-efficacy and the use of the four components of the 4C/ID-model. A significant negative relationship was found between prior knowledge and part-task practice ($\beta = -.21$, $p <.05$). The variance explained for the dependent variables was $R^2 = .07$ for learning task, $R^2 = .03$ for part-task practice, $R^2 = .08$ for supportive information and $R^2 = .02$ for procedural information. RQ2 investigated the influence of students' use of the four components of the 4C/ID model on students' learning gain, controlled for students' prior knowledge, task value and self-efficacy. Results reveal a significant influence of the use of components of the 4C/ID-model on students' learning gain, more specifically, the use of procedural information ($\beta = .08$, $p <.05$) and learning tasks ($\beta = .12$, $p <.01$) have a significant influence on students' learning gain. Prior knowledge had a major influence on students' learning gain ($\beta = .91$, $p <.001$). The variance explained for students' learning gain was $R^2 = .79$.

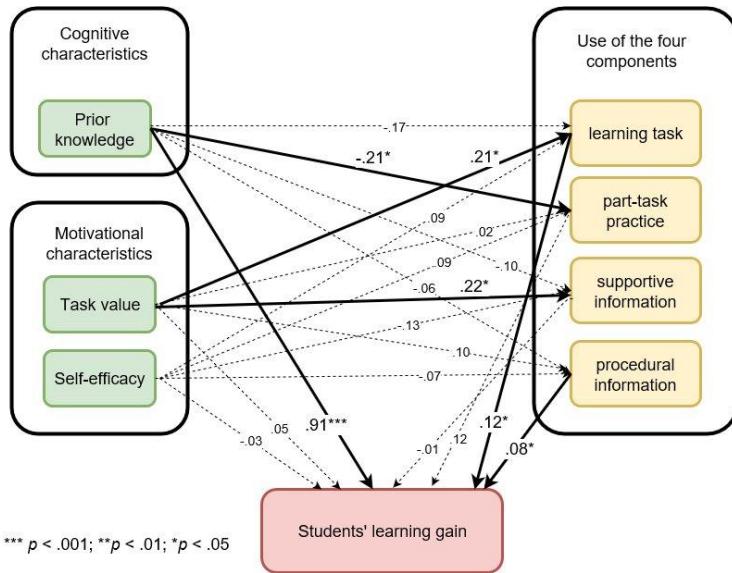


Figure 2. The research model

Discussion

The current study explored the influence of students' cognitive and motivational characteristics on students' self-directed learning in a 4C/ID-based online learning environment and the influence on students' learning gain. Results indicate that prior knowledge and task value influence students' self-directed learning. More specifically, prior knowledge has a significant negative influence on the use of learning tasks (e.g., authentic problem-based exercises) and part-task practices (e.g., drill-and practice exercises). Part-task practices contain additional exercises with more recurrent content in order to prepare students to solve the learning tasks which contain more non-routine content. Accordingly, results indicate that some students seem to be aware that they are lacking routine knowledge to solve the learning tasks. Furthermore, results indicate that students attempted the learning tasks a few times in order to obtain better scores (i.e., differences in activity for the learning tasks). Additionally, results indicate that students' self-directed learning is influenced by students' perceived task value. Students' task value seems to have a positive influence on the use of the learning tasks. Students' task value also has a significant influence on the use of supportive information (i.e., background information and theory in order to understand the content of the learning tasks in its entirety). This is in line with the perspective of self-regulation theory as this theory indicates that learners generate motivations to initiate and maintain learning, and then self-direct their learning processes (Martens et al., 2004; Zimmerman, 2000). Finally, self-efficacy had no influence on students' self-directed learning. A feature of self-efficacious students is that they work harder and persist longer when they encounter difficulties. As there was no influence, this could indicate that the tasks in the online course were not complex enough for the students to encounter difficulties (Zimmerman, 2000).

Additionally, results indicate that the amount of use of the learning tasks and procedural information significantly contributed to students' learning gain. These results imply that the combined use of learning tasks and procedural information influences students' learning gain. The procedural information in this context is just-in-time information. Therefore, consulting this particular support and guidance can prevent learners from paying attention to irrelevant task aspects and subsequently reduce cognitive load, which on its turn can improve their task performance (van Merriënboer & Sluijsmans, 2009). Regardless these results, students' prior knowledge still has a primary significant influence on students' learning gain. This major influence of students' prior knowledge can be influenced by the study design, more specifically, the fact that a rather short

intervention, spread out over two weeks, is probably not enough to exert a major influence on students' learning gain.

Some limitations in the current study should be mentioned. Firstly, this study gives information of *what* is used, but little information is provided on *why* students used these specific components during their online language learning. For instance, combining objective information with think-aloud protocols can give more insight in the actual cognitive processes (Winne, 2010). Secondly, by looking at the isolated use of the four components, little is known about the optimal use of the different components. By analyzing log-data more in detail and for instance looking at the sequences of use of the four components, more insight could be given on effective use. A third important limitation concerns the course design. Findings of the current study indicated that the use of learning tasks did not differ based on students' level of prior knowledge. As the learning tasks were sequenced in a simple- to -complex order, were clustered in a task class and had a predefined order, this course design probably influenced our results. It might have been more interesting if students had been able to select learning tasks themselves based on their level of difficulty. Follow-up studies should enable students to select their future learning tasks at their option. This would provide more information about the self-directed learning, namely, evaluating their learning outcomes and selecting learning tasks based on their performance; van Merriënboer & Sluijsmans, 2009).

Conclusion

This study provides more information about the influence of students' motivational and cognitive characteristics on students' self-directed learning in a 4C/ID-based learning environment for foreign language learning. Results indicate that students slightly adapt their behavior based on their specific learning needs and interests. Results indicated that more comprehensive information might challenge more motivated students. Additionally, students with lower prior knowledge seem to consult part-task practice to help them to reach a very high level of automaticity for selected recurrent aspects of the learning tasks. As a result, findings indicate that the 4C/ID-model is an instructional design model that allows for a lot of learner control and therefore supports self-directed learning, by providing four components containing different information (or a different format of information) that can be consulted freely in an non-linear trajectory. Furthermore, results reveal the importance the combined use of learning tasks and procedural information on students' learning gain, when controlling for students' characteristics.

References

- Compton, L. K. L. (2009) Preparing language teachers to teach language online: a look at skills, roles, and responsibilities, Computer Assisted Language Learning, 22, 73-99,
- Chen. K., & Jang, S. J. (2010). Motivation in online learning: Testing a model of self-determination theory. Computers in Human Behavior, 28, 741-752.
- Cuieford, J. P. (1965). Fundamental statistics in psychology and education (4th ed.). New York: McGraw Hill.
- Duncan, G. W., & McKeachie, W. J. (2010). The making of motivated strategies for learning questionnaire. Educational Psychologist, 40, 117-128.
- Evens, M., Elen, J., & Depaepe, F. (in press). Effects of opportunities to learn in teacher education on the development of teachers' professional knowledge of French as a foreign language. Journal of Advances in Education Research.

Greene, J. A., & Azevedo, R. (2007). A theoretical review of Winne and Hadwin's model of self-regulated learning: new perspectives and direction. *Review of Educational Research*, 77, 334-372.

Jiang, L., Elen, J., & Clarebout, G. (2009). The relationship between learner variables, tool-usage behavior and performance. *Computers in Human Behavior*, 25, 501-509.

Khine, M. S. (2013). Application of Structural Equation Modeling in Educational Research and Practice. Rotterdam, NL: SensePublishers

Lee, L. (2002). Enhancing learners' communication skills through synchronous electronic interaction and task-based instruction. *Foreign Language Analys*, 38, 16-23.

Lin, C-H., Zhang, Y., & Zheng, B. (2017). The roles of learning strategies and motivation in online language learning: A structural equation modeling analysis. *Computers in Education*, 113, 75-85.

Martens, R. L., Gulikers, J., & Bastiaens, T. (2004). The impact of intrinsic motivation on e-learning in authentic computer tasks. *Journal of Computer Assisted Learning*, 20, 368-376.

Merrill, M. D. (2002). First principles of instruction. *Educational Technology Research and Development*, 50, 43-59.

Mills, N., Pajares, F., & Herron, C. (2007). Self-efficacy of college intermediate French students: relation to achievement and motivation. *Language Learning*, 57, 417-442.

Moos, D. C., & Azevedo, R. (2008). Self-regulated learning with hypermedia: the role of prior domain knowledge. *Contemporary Educational Psychology*, 33, 270-298.

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, 48, 1-36.

Savalei, V., & Bentler, P. (2009). A two-stage approach to missing data: theory and application to auxiliary variables, *Structural Equation Modeling: A Multidisciplinary Journal*, 16, 477-497.

Tsuda, A. & Nakata, Y. (2013). Exploring self-regulation in language learning: a study of Japanese high school EFL students. *Innovation in Language Learning and Teaching*, 7, 72-88.

Van Merriënboer, J. J. G. (1997). Training complex cognitive skills: a four-component instructional design model for technical training. Englewood Cliffs, NJ: Educational Technology Publications.

Van Merriënboer, J. J. G., & Sluijsmans, M.A. (2009). Toward a synthesis of cognitive load theory. Four-component instructional design and self-directed learning. *Educational Psychology Review*, 21, 55-66.

Winne, P. H. (2010). Improving measurements of self-regulated learning. *Educational Psychologist*, 45, 267-276.

Zimmerman, B. J. (2000). Self-efficacy: an essential motive to learn. *Contemporary Educational Psychology*, 25, 82-91.

Suzi Lee, Rob Kadel, Gülcen Erçetin*, Amanda Madden & Yakut Gazi

Georgia Institute of Technology, Atlanta, USA

*Bogaziçi University, Istanbul, Turkey

suzi.lee@pe.gatech.edu - rob.kadel@gatech.edu - gulcaner@boun.edu.tr - amadden@cc.gatech.edu - yakut@gatech.edu

How can learner analytics data inform language MOOC design?

Bio data



Suzi Lee is a full-time lecturer and instructional designer at the Georgia Tech Language Institute. She teaches in the Intensive English Program and has developed a series of online programs including teacher training courses on technology as well as business English MOOCs hosted on Coursera. She has an MA in Applied Linguistics from Teachers College, Columbia University and an MA in Design Futures from Goldsmiths College, University of London.



Rob Kadel is Assistant Director for Research in Education Innovation with the Center for 21st Century Universities at Georgia Tech. His research spans nearly 20 years, including evaluating the effectiveness of learning technologies at both the K-12 and higher ed. levels. Rob earned his Ph.D. in sociology from Emory University in 1998.



Gülcen Erçetin is professor in the Department of Foreign Language Education at Bogaziçi University, where she teaches undergraduate and graduate courses in second language teaching and applied linguistics. Her research focuses on L2 learning in multimedia environments and the role of working memory in second language learning.



Amanda Madden is a Research Scientist at the Center for 21st Century Universities, Georgia Tech. Her work for C21U includes research design, facilitation, compliance, and grant consultation. She received her PhD in History from Emory University in 2011.



Yakut Gazi, Ph.D., is the Associate Dean for Learning Systems at Georgia Tech Professional Education, overseeing learning design and development, technology infrastructure, compliance, and assessment. She has worked at higher education institutions in the United States, Qatar, Turkey, and Spain since 1993. She has her Ph.D. from Texas A&M University, and an M.A. and a B.S., both from Bogazici University in Turkey.

Abstract

Massive Open Online Courses (MOOCs) have received a great deal of attention in the field of language learning and teaching. Student engagement, retention and success are major issues in MOOC research in general and language MOOCs (LMOOCs) in particular. This paper presents preliminary analyses of student engagement in an LMOOC entitled *Speak English Professionally: In Person, On-line & On the phone* designed by the Georgia Institute of Technology. The course, with over 200,000 students enrolled, is offered on the *Coursera* platform. Learners' engagement with course elements in relation to their performance in the course was analyzed with a view to improve course design and activities.

Conference paper

Massive Open Online Courses (MOOCs) have received attention in recent years as a means of providing tens of thousands of students with free education without age or geographic location restrictions. MOOCs are considered "to have an unprecedented impact on educational practice and affect the ways students engage with language and culture over the next decade" (Dixon & Thomas, 2015, p. 1). Despite the great emphasis on the significance of MOOCs for education, the field has a long way to go in terms of designing and evaluating MOOCs as well as conducting empirical research on learning in MOOC environments.

Although the number of MOOCs for teaching languages (LMOOCs) has increased over the recent years, second language (L2) instruction has not "so far been a major player in the MOOC space" (Goodwin-Jones, 2014, p. 5). A major concern is the suitability of MOOCs for L2 teaching (Bárcena, Read, Martín-Monje & Castrillo, 2014), especially in terms of the role of the instructor, provision of feedback, student-teacher ratio, and heterogeneity of the learners. In addition to design issues, the issue of student engagement and success in language MOOCs is another major concern. A number of studies (e.g. Uchidiuno et al., 2017; Türkay et al., 2017) have investigated how English Language Learners (ELLs) or second language (L2) learners enrolled in subject matter MOOCs (e.g. psychology, statistics etc.) engage with course materials and whether their engagement patterns are related to retention and success in the course. On the other hand, few studies have examined learners enrolled in LMOOCs. A recent study came from Martín-Monje, Castrillo, and Mañana-Rodríguez (2017) who investigated use of learning objects, online interaction and participation as well as course success based on an LMOOC. Data from 4485 participants indicated that videos were the most frequently accessed materials and that there was a strong correlation between grade obtained and number of video accesses. The results also indicated that task submission and assessment submission were the strongest predictors of success whereas forum interaction and the submission of peer feedback did not contribute significantly to explaining student success. Analysis of participants' engagement styles revealed that *viewers* (i.e. those who accessed the learning objects but did not submit any tasks) and *all-rounders* (i.e. those who accessed at least 2 learning materials, submitted at least 1 task and posted at least 1 comment in the course forums) were the most prominent profiles. The current study examined learners' engagement with course materials in an LMOOC entitled *Speak English Professionally: In Person, On-line & On the phone* with a view to determine which behaviors had an impact on learner performance so that the learning environment could be improved. Using learning analytics data, engagement was defined as assessments completed and videos watched.

Methodology

Student profile

Between February 2018 and January 2016, *Speak English Professionally* has been visited by 619,050 learners worldwide. Table 1 provides information about the student profile.

Table 1. Student profile

Enrolled	238,443
Actively enrolled	169,023
Paid enrollments	7274
Financial aid recipients	12930
Completed course	7738
Completion ratio (of paid or financial aid learners)	4.6%
Completion ratio (overall)	38.2%

Demographic information for all participants is not made available through the Coursera platform. However, a sample of participants in the Speak English Professionally course were surveyed in fall 2017, with the following characteristics ($n = 374$):

- Gender: female 52.7%, male 45.7%, other/chose not to disclose 1.6%
- Average age: 33.0 years
- Country in which currently residing: 7.3% China, 7.0% France, 6.8% India, 6.5% Egypt, 6.2% United States (every other nation was 5% or less of the sample)
- Highest level of schooling completed: Bachelor's/university degree 41.6%, Master's degree 25.4%, all others 33%
- Most common fields in which respondents received degree: business, management, marketing 15.7%, engineering 15.7%, computer and information sciences 8.8%, English language and literature 5.7% (every other degree field was 5% or less of the sample)
- Employment status: employed full-time 45.2%, student, 23.3%, unemployed/looking for work 12.8%, all others 18.7%
- Fields in which respondents work or are seeking work: engineering 12.4%, education/training/library 11.0%, business or financial 10.3%, information technology 10.0%, all others 56.3%
- Most common first languages: Arabic 21.8%, Spanish 15.8%, French 10.6%, Chinese (Mandarin) 7.6% (every other language was 5% or less of the sample)

Majority of the learners indicated that they were comfortable with basic English communication, but few were comfortable with dealing with complex English communication.

Course materials and structure

In general, MOOCs on the Coursera platform follow a similar course structure. A course consists of a number of modules; a module consists of one or more lessons; and a lesson contains various items such as lecture videos, readings, discussion prompts, assessments, etc. Therefore, the overall structure of the course, *Speak English Professionally: In Person, On-line & On the phone*, was designed based on this model. The structure of the course components is illustrated in Figure 1.

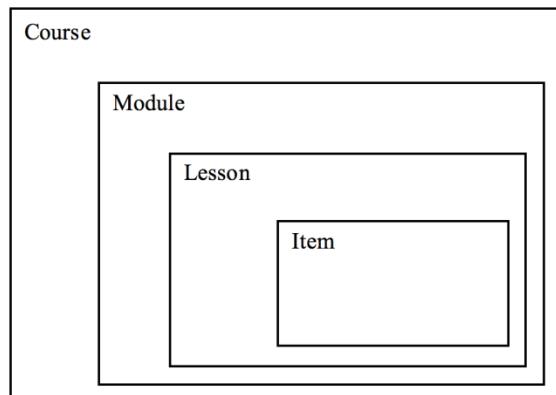


Figure 1. Structure of course components

There are other factors of the course structure design that were based on the instructional design practices and parameters set forth by Coursera including guidelines on exercising the backward design approach, determining the length of the course, and appropriately utilizing the assessment tools available on Coursera's platform. The curriculum development process resulted in a five-module course with fourteen lessons. Each module contains at least two lessons, and each lesson consists of one lecture video, a practice quiz, and at least one page of additional resources. In addition, two discussion forums are available with specific prompts to encourage learner interaction. At the end of every module, learners are required to complete a graded project, which in this course are all set up as graded peer-review assignments. Details of each course item are outlined below.

Lecture Videos

In this course, the lecture videos are the main source of content delivery. Based on the study by Guo, Kim, and Robin (2014), for MOOCs where videos are central to the learning experience, the median video engagement time for learners is six minutes. Therefore, in order to increase student retention, most of the lecture videos in this course were designed and produced to be less than six minutes long with an average length of 5.57 minutes. To enhance student retention, 1-3 in-video prompts were added to all videos. These in-video prompts automatically stop the video and appear as a pop-up window on the screen. They are located in the video where the lecturer would want to check for comprehension or ask learners to reflect on their own experience. These prompts can be in the form of a multiple-choice question, simple text submission question, or a reflective question. Students would need to answer the prompt in order to continue watching the lecture.

Practice Quizzes

The practice quizzes in each lesson consist of 1-5 multiple choice comprehension questions. The questions mainly focus on the main points from the lecture. Each correct and incorrect response is followed with detailed feedback based on lesson content. Learners get three attempts at achieving a score of 80% or higher. However, because these quizzes are not included in a learner's overall grade, it is not necessary for learners to pass the quizzes in order to complete the course.

Discussion Forums

It is well known that interaction is considered a fundamental requirement of second language acquisition, so we included opportunities for learners to interact through the discussion forums. The two discussion forums can be found in the first and fourth module of the course.

Peer-review Assignments

The peer-review assignments are the only graded assessment pieces in this course and are found at the end of each module. Each assignment gives learners the opportunity to

practice and show evidence of reaching a certain level of mastery of the designated learning outcomes. Much of the course content is adapted from materials and practices created by the course instructors who have taught the materials in a face-to-face environment. In these classes, interaction between instructor and learner as well as interaction between and amongst learners is essential for receiving feedback on one's progress. On Coursera's platform, although there are interactive discussion forums, the only graded assessment tool that allows for getting meaningful feedback is the peer-review assignment. Therefore, this assessment tool was chosen for the graded items of this course.

Results

Data on course performance, the completion of quizzes, and video-watching were collected on 1,202 learners from 1 January to 31 December 2017. This total for 2017 represents 15.5% of all paid/financial-aid learners who have participated in the course over the time period from January 2016 (the launch of the course on Coursera's new platform) to February 2018 (when 2017 data were pulled for this study). The variables studied and their descriptive characteristics are shown in Table 2 below.

Table 2. Descriptive statistics for course engagement variables

	Mean	Median	SD	Min.	Max.
Number of Quizzes Completed	9.90	12	2.97	1	12
Number of Course Modules passed	3.21	4	1.83	0	5
Average Quiz Grade	0.98	0.99	0.02	0.75	1
Course Grade	0.64	0.75	0.33	0.01	1
Number of Videos Started	21.88	19	17.68	0	140
Number of Videos Completed	11.01	11	7.43	0	47
Video Completion Rate (#completed / #started)	0.54	0.56	0.25	0	1
Number of Minutes of Video Watched	66.27	64.33	51.43	0	396.90

In order to determine which behaviors had an impact on learner performance, the variable Course Grade was regressed on four independent variables. The independent variables include: 1) Number of Quizzes Completed, 2) Average Quiz Grade, 3) Number of Course Modules Passed, and 4) Video Completion Rate (the number of videos each learner completed divided by the number that each started).

Table 3 shows the results of one regression analysis for all learners. We also disaggregated the model by four subsets of learners designed to gauge learner engagement. In all models, the variables Number of Quizzes Completed and Number of Course Modules Passed showed statistical significance and had positive effects on Course Grade. The more quizzes learners complete and the more course modules they complete, the higher their course grades. Video Completion Rate was also significant for all learners and for two subsets of learners: 1) learners whose video completion rates were greater than zero but less than 100% (see Figure 2); and 2) learners whose total number of minutes watched was within one standard deviation of the mean of numbers of minutes watched (see Figure 3). These learners can be classified as "regular learners" consistent with Shah et al. (2017). Regression coefficients for Video Completion Rate in those three models are negative. This indicates that the more a learner completed watching the course videos, the lower their final course grade was. Conversely, the less a learner completed watching the videos, the higher their final course grade was.

Table 3. Results of regression analyses

		B	SE	Beta	T	Adj.	F
All Learners	Consta	0.03	0.07		0.37	0.97	9608.
	NQC	0.01	0.00	0.07	9.42*		
	AQG	0.00	0.07	0.00	0.03		
	NCMP	0.17	0.00	0.93	121.1		
	VCR	-0.02	0.01	-0.01	-	-	-

Note. NQC: Number of quizzes completed, AQG: Average course grade, NCMP: Number of course modules completed, VCR: Video completion rate.

** $p < .01$, *** $p < .001$

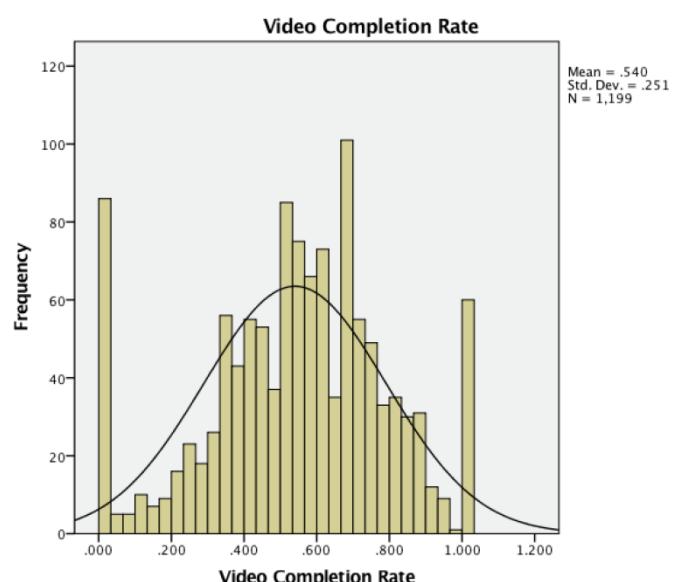


Figure 2. Video completion rate

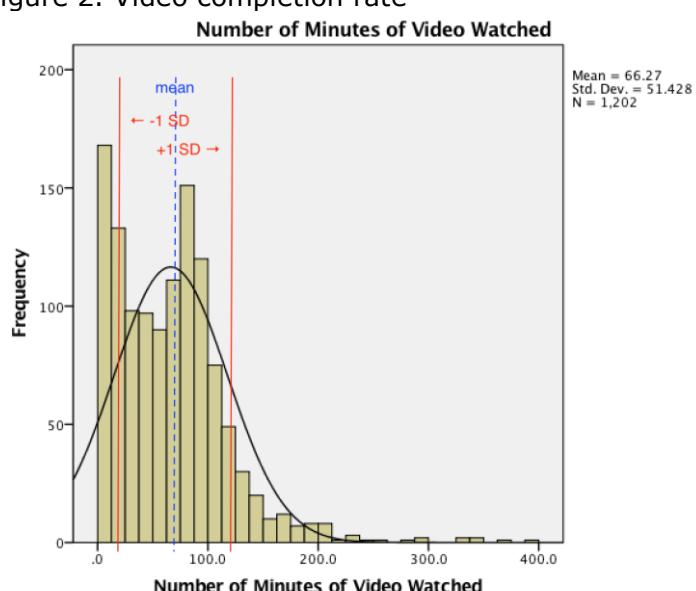


Figure 3. Number of minutes of video watched

Discussion

The results point to significant effects of quiz and course module completion as well as video completion rate. Quiz and module completion has facilitative effects on course performance. Martín-Monje, Castrillo, and Mañana-Rodríguez (2017) have also shown that task submission including completion of quizzes is strongly related to both course completion and success in the course. On the other hand, video completion rate is negatively related to course performance. In other words, the learners who finished fewer videos than they started had higher course performance. This finding is contrary to studies that found a positive relationship between course performance and number of video accesses (e.g., Martín-Monje, Castrillo, & Mañana-Rodríguez, 2017). This can be explained by the proficiency level of those learners. In other words, higher proficiency learners may not have felt the need to watch the videos to do the course assignments. For higher proficiency learners, videos that are somewhat more advanced may prove to be more engaging. Future research is warranted to determine if those whose video completion rates are lower have also indicated higher English proficiency on the demographic survey.

Conclusion

The findings point to significance of quizzes and course modules for success in the course. Quizzes as self-check activities help learners to confirm their understanding of basic concepts (Sokolik, 2014). Although video completion rate was negatively related to course performance, their importance for L2 learners as aids for comprehension has already been established in L2 literature (see Montero Perez, Van Den Noortgate, & Desmet, 2013 for a meta analysis). Additionally, research has shown that ELLs show distinct behaviors when they are struggling in a MOOC (Uchiduno et al., 2017); they download video transcripts, watch videos for a greater length of time and pause them for longer compared to non-ELL users (Türkay et al., 2017). Videos for language learning need to be carefully designed. For instance, Sokolik (2014) suggests that talking head videos should be avoided and learners should be immersed in a rich environment that encourages reflection and discussion so as to engage them both in culture and the language. Additionally, Uchiduno et al. (2017) have shown that ELLs benefit more from video narration when it is accompanied by text displayed on the screen.

The findings of the current study suggest that learning analytics data can be used to make inferences about the learning process, predict learner behavior, and improve learning environment. Further research should include interventions in relation to course design and testing those interventions by collecting further learning analytics data. Thus, MOOC design should involve a sustained effort so that we have a better understanding of learning in such virtual environments.

References

- Bárcena, E., Read, T., Martín-Monje, E., & Castrillo, M. (2016). Analysing student participation in Foreign Language MOOCs: A case study. In U. Cress & C. Delgado Kloos (Eds.), Proceedings of the European MOOC Stakeholder Summit 2014 (pp. 11-17). Available at <http://www.emooocs2014.eu/sites/default/files/Proceedings-Moocs-Summit-2014.pdf>
- Colpaert, J. (2014). Reflections on present and future: Towards an ontological approach to LMOOCs. In E. Martin Monje & E. Bárcena Madera (Eds.), Language MOOCs: Providing learning, transcending boundaries (pp. 161-172). Berlin: De Gruyter Open.
- Dixon, E. & Thomas, M. (2015). Researching Language Learner Interactions Online: From Social Media to MOOCs. Texas State University: CALICO Monograph Series.

Godwin-Jones, R. (2014). Global reach and local practice: the promise of MOOCs. *Language Learning & Technology*, 18, 5–15.

Guo P. J., Kim J., & Robin R. (2014). How video production affects student engagement: An empirical study of MOOC videos. ACM Conference on Learning at Scale (L@S 2014). Available at <https://learningatscale.acm.org/las2014/papers.html>.

Martín-Monje, E., Castrillo, M. D., Mañana-Rodríguez, J. (2017). Understanding online interaction in Language MOOCs through Learning Analytics. *Computer Assisted Language Learning*, DOI: 10.1080/09588221.2017.1378237.

Montero Perez, M., Van Den Noortgate, W., & Desmet, P. (2013). Captioned video for L2 listening and vocabulary learning: A meta-analysis. *System*, 41, 720-739.

Read, T. (2014). The architectonics of language MOOCs. In E. Martin Monje & E. Barcena Madera (Eds.), *Language MOOCs: Providing learning, transcending boundaries* (pp. 91-105). Berlin: De Gruyter Open.

Shah, K., Bach, M., Qin, N., Liu, A., Hussen, H., Lee, J.Y., & Kadel, R. (2017). Inferring student success predictors for CS1301x online course at Georgia Tech. Poster session presented at the American Society of Engineering Education STEM Education Expo, Atlanta, GA.

Sokolik, M. (2014). What constitutes an effective language MOOC? In E. Martin Monje & E. Barcena Madera (Eds.), *Language MOOCs: Providing learning, transcending boundaries* (pp. 17-32). Berlin: De Gruyter Open.

Türkay, S., Eidelberg, H., Rosen, Y., Seaton, D., Lopez, G., & Whitehill, J. (2017). Getting to know English language learners in MOOCs: Their motivations, behaviors, and outcomes. In Proceedings of the Fourth (2017) ACM Conference on Learning@ Scale (pp. 209-212).

Uchidiuno, J., Koedinger, K., Hammer, J., Yarzebinski, E., & Ogan, A (2017). How do English language learners interact with different content types in MOOC videos? *International Journal of Artificial Intelligence in Education*, 1-20. Doi: 10.1007/s40593-017-0156-x.

Jia Li & Lillian Mak*

University of Ontario Institute of Technology, Oshawa, Canada

*Centennial College, Toronto, Canada

Jia.li@uoit.ca - lmak13@my.centennialcollege.ca

Data documentation of an open, online collaboration tool: bridging the gaps of reading comprehension and expository writing skills for college students

Bio data



Dr. Jia Li is an Associate Professor at the Faculty of Education, University of Ontario Institute of Technology. She received her masters and doctoral degree in second language education at the Ontario Institute for Studies in Education, University of Toronto. She was a Canada-U.S. Fulbright Scholar at Harvard Graduate School of Education. Her research focuses on data-driven innovative language instruction using new technologies for linguistically diverse students and English language learners, and technology enhanced vocabulary learning, reading and writing strategies.



Lillian Mak is a writing instructor at Centennial College, Toronto, Canada. She is currently pursuing her Masters studies at the Faculty of Education of the University of Ontario Institute of Technology. Her research interests focus on academic reading and writing skills for college students. More specifically, she is interested in the reasoning skills required for clear, informed writing to bridge students' academic writing skills from secondary to post-secondary studies.

Abstract

This paper reports on a study, thoroughly documenting the data of an open, online collaboration tool that is implemented to bridge the gaps of reading comprehension and expository writing skills for college students. Developing academic, expository writing skills, which are mostly source-based and require sound and credible arguments, is challenging yet critical for students to succeed in their post-secondary studies (Cumming, Lai & Cho, 2016; Li, Owen, Walchuk & Mak, in press). This includes paraphrasing, summarizing and synthesizing skills based on a comprehensive reading comprehension of academic text. Technology can be a tool to facilitate individual and collaborative learning activities (Kerr & Frese, 2017; Liu & Lan, 2016; Strobl, 2014). Previous studies have examined the use of online annotation and cloud-based tools, such as Google Docs, to enable students to share, highlight and write notes on electronic documents on a social platform (Novak, Razzouk & Johnson, 2012; Luo, Gao & Hoff, 2013). These tools have been most commonly used to facilitate reading comprehension, peer review and discussion (Yeh, 2014; Luo, et al., 2013), albeit with the more basic skills of vocabulary and grammar rather than the more complex skills of organization and evaluation characteristic of expository writing (Zheng, Lawrence, Warschauer & Lin, 2015; Strobl, 2014).

The research project in progress has been developed as a 13-week instructional intervention. It first focuses on studying the connection between college students' reading comprehension and writing skills, which to our knowledge, has been rarely explicitly addressed in research literature. Secondly, it aims to examine how an "open"—

publically available—cloud-based notebook and online collaborative tool, OneNote, can be effectively used to enhance students' reading comprehension that directly contributes to their writing skill development, and how their learning progress and outcomes can be thoroughly documented using the system data. We use OneNote to incorporate collaborative reading and writing tasks that engage students' higher order cognitive skills, such as paraphrasing and summarizing.

The study is conducted at a large Canadian community college with 100 student participants enrolled in a first-year communications course. The intervention comprises 10 lesson units designed to teach students expository writing strategies while strengthening their reading comprehension. The preliminary results indicate that students with inadequate academic reading skills have difficulties in interpreting source material comprehensively and retreat to colloquial language when attempting to paraphrase. Some positive impact of the intervention on student learning are found with more enhanced student motivation and more productive collaborations in their reading and writing activities using OneNote.

Conference paper

Introduction and literature review

It is widely accepted that the ability to write from source material is critical for students' success in higher education (Cumming et al., 2016; Li et al., 2018); however, students are increasingly beginning their post-secondary studies with inadequate language proficiency to cope with the academic reading and writing demands required of them (Williamson, 2008; Douglas, 2010). At a large Canadian university, first-year undergraduates not achieving 75% on the provincial high school standard literacy test are required to write the university's writing competency test. In a study of admissions data for the 2003-2004 cohort, about 47% of new students admitted in the university were required to write the English writing competency test (Douglas, 2010). Similarly, data from the US National Education Longitudinal Study of 1988 indicated that almost 60% of students starting community colleges required remedial coursework (Bailey, Jenkins & Leinbach, 2005).

Collaboration with peers and teachers has been found to be effective for practising, evaluating and monitoring the higher order skills used in both reading and writing (MacArthur & Philippakos, 2013; Shen, 2013). Students who received either peer-led or teacher-led, discussion-centered instruction performed significantly better on reading and writing tests than students who learned by a transmissive style of instruction (Shen, 2013). Students engaging in collaborative tasks in a digital social environment had a significantly higher level of self-efficacy, and participated significantly more in vocabulary learning activities, and have a better learning gain than those working individually (Liu & Lan, 2016). Research has shown that highly collaborative groups tended to exchange information throughout the writing process and they could produce better quality writing (Yeh, 2014).

A few studies suggest that a technology-rich environment fosters higher order thinking skills in students (Hopson, Simms & Knezek, 2002; Johnson, Archibald & Tenenbaum, 2010); thus, an open online collaboration tool may be an effective resource to support students in developing the skills required for the higher order cognitive processes characteristic of academic reading and writing. Research on the use of online tools in higher education has primarily focused on annotating text or peer critique as a means to support students in their language development (Novak, Razzouk & Johnson, 2012; Luo, Gao & Hoff, 2013). Results from studies on collaborative online writing environments have shown that students often provided feedback on lower order language skills such as lexis or grammar rather than higher order concerns of content and organization (Zheng et al., 2015; Yim, Warschauer, Zheng & Lawrence, 2014). There seems to be limited research on the extent, if any, that college students' reading comprehension skills relate to their expository writing.

Two research questions are under examination in this study.

1. How are first-year college students' reading comprehension and expository writing skills related?
2. How does the use of OneNote enhance students' reading and writing skills?

Methods

Participants

This study is conducted at a large Canadian community college among 100 students who are enrolled in a communications course designed to introduce first-year students to academic reading and writing. These student participants are from a variety of academic disciplines with business, engineering, and community studies being the primary fields. Ranging in age from 18-25 years old, many of the participants have entered college directly from high school. Although the students are native English speakers, they are culturally diverse.

The Intervention and research design

The 13-week intervention study comprises 10 lessons, each lesson requiring students to apply a specific writing skill essential to expository writing while developing their academic reading comprehension skills. Designed to guide students systematically from fundamental to more intricate language skills, each lesson includes an assigned reading, a language skill lesson, and a small group collaborative writing session using the online tool, OneNote. Initial lessons focus on vocabulary and explicit comprehension competencies, followed by paraphrasing and summarizing strategies, progressing to argument development and culminating in an expository essay.

The study uses a pre- and post-test experimental design. The 100 students in four classes are randomly divided into experimental and control groups, with or without the 13-week OneNote facilitated intervention. The students in the control group received the regular instruction of the same content from the same instructor. The data collected from participants include:

- 1) Pre- and post-intervention reading and writing tests
- 2) Collaborative reading and writing task samples
- 3) System data from OneNote
- 4) Focus group interviews

To respond to Research Question 1 that investigates the correlations between students' reading and writing competence, we will run correlation tests, using 1) pre- and post-intervention reading and writing tests, and 2) performance scores of collaborative reading and writing task samples for both control and experimental groups.

To respond to Research Question 2 that examines the impact that the intervention may have on students' reading and writing skills, we will run ANOVA tests comparing 1) pre- and post-intervention reading and writing tests between and within the control and experimental groups as well as their 2) performance scores of collaborative reading and writing task samples between groups. Moreover, the relationship between experimental group students' actual use of the online tool and their learning outcomes will be examined using the system data from OneNote and their pre- and post-intervention reading and writing test scores.

Thematic and content analyses will be applied for focus group interview transcripts to gain in-depth understanding of students' perspectives on the effectiveness of the intervention and relationship between their reading and writing tasks, and furthermore their reading and writing skills.

Preliminary results

Although the study is still in progress, the preliminary findings indicate some positive impact of the intervention on student learning. Students are found to be more motivated with

enhanced collaboration, and they are more productive in their reading and writing activities using OneNote. Students' learning outcomes of the intervention are yet to be measured using post-intervention measures at the end of the academic year, and to be assessed using the system data, including their learning activity logs using OneNote.

The present results have shown that inadequate academic reading skills impact students' writing development. Some observations on how students are at a loss to effectively paraphrase source material without sufficient academic language skills have been noted.

1. Students have difficulty in interpreting source material comprehensively which is necessary for successful paraphrasing. Without solid academic reading skills, students could not analyze the text in-depth. Furthermore, they are unable to retain and integrate all components of the text information, thus, fail to produce an accurate paraphrase.
2. Lacking academic language hinders not only their thorough understanding of the meaning of a text—language input skills—but also their language output and production skills—articulating the ideas in a coherent paraphrase. For example, although students with limited academic language skills may recognize the basic meaning of a word, they could not adapt the meaning to correspond to its contextual use. In some cases, they retreat to narrative discourse and using more basic conversation/colloquial language skills when attempting to paraphrase and write an expository essay in general.

Discussion and conclusion

Based on these preliminary results, paraphrasing which is a core skill in writing from source material may be more complicated than originally assumed. Data analysis is still underway to more fully interpret results especially with respect to how students can use academic language to not only reason to achieve meaning but also to convey their understanding of a text without reverting to the use of colloquial language.

How to make good use and collect system data, documenting the impact of an increasing number of new technology tools, which assist online collaboration and are open to the public for teaching and learning language and literacy skills, is important as well as relevant to the theme of CALL2018 conference—task design and online collaboration.

It is expected that the results of the study will provide writing instructors and teachers in language arts and second language education with valuable insights into the intrinsic property of reading comprehension underlying expository writing skills. In light of Vygotsky's (1978) social-constructivist theory, it will further assist our teaching practice and innovate instruction to strategically promote student collaboration in reading and writing activities by focusing on more complex language skills.

References

Bailey, T. R., Jenkins, D., & Leinbach, D. T. (2005). What we know about community college low-income and minority student outcomes. New York, N.Y.: Community College Research Center, Columbia University.

Cumming, A., Lai, C., & Cho, H. (2016). Students' writing from sources for academic purposes: A synthesis of recent research. *Journal of English for Academic Purposes*, 23, 47–58.

Douglas, S. R. (2010). Non-native english speaking students at university: Lexical richness and academic success. Unpublished doctoral dissertation, University of Calgary.

Hopson, M. H., Simms, R. L., & Knezek, G. A. (2002). Using a technology-enriched environment to improve higher-order thinking skills. *Journal of Research on Technology in Education*, 34(2), 109-119. doi:10.1080/15391523.2001.10782338

Johnson, T. E., Archibald, T. N., & Tenenbaum, G. (2010). Individual and team annotation effects on students' reading comprehension, critical thinking, and meta-cognitive skills. *Computers in Human Behavior*, 26(6), 1496-1507. doi:10.1016/j.chb.2010.05.014

Kerr, M. M., & Frese, K. M. (2017). Reading to learn or learning to read? Engaging college students in course readings. *College Teaching*, 65(1), 28-31. doi:10.1080/87567555.2016.1222577

Li, J., Owen, M., Walchuk, K., & Mak, L. (in press). Helping students avoid plagiarism: A comprehensive approach to developing students' academic writing skills. *What Works? Research into Practice: A research-into-practice series*. Research monograph # 72. The Literacy and Numeracy Secretariat and the Ontario Association of Deans of Education.

Liu, S. H., & Lan, Y. J. (2016). Social constructivist approach to web-based EFL learning: Collaboration, motivation, and perception on the use of Google docs. *Educational Technology & Society*, 19(1), pp. 171-186.

Luo, T., Gao, F., & Hoff, K. S. (2013). Examining student participation in three learning activities supported by social annotation tools. *Journal of Educational Technology Development and Exchange*, 6(2), 53-68.

MacArthur, C. A., & Philippakos, Z. A. (2013). Self-regulated strategy instruction in developmental writing: A design research project. *Community College Review*, 41(2), 176-195. doi:10.1177/0091552113484580

Novak, E., Razzouk, R., & Johnson, T. E. (2012). The educational use of social annotation tools in higher education: A literature review. *Internet and Higher Education*, 15, 39-49. doi:10.1016/j.iheduc.2011.09.002

Shen, F. (2013). Using group discussion with Taiwan's EFL college students: a comparison of comprehension instruction for book club, literature circles, and instructional conversations. *English Language Teaching*, 6(12), 58-78. doi:10.5539/elt.v6n12p58

Strobl, C. (2014). Affordances of web 2.0 technologies for collaborative advanced writing in a foreign language. *Calico Journal*, 31(1), pp. 1-18. doi:10.11139/cj.31.1.1-18

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Williamson, G. L. (2008). A text readability continuum for postsecondary readiness. *Journal of Advanced Academics*, 19(4), 602-632. doi:10.4219/jaa-2008-832

Yeh, H.-C. (2014). Exploring how collaborative dialogues facilitate synchronous collaborative writing. *Language Learning & Technology*, 18(1), pp. 23-37.

Yim, S., Warschauer, M., Zheng, B., & Lawrence, J. F. (2014). Cloud-based collaborative writing and the common core standards. *Journal of Adolescent & Adult Literacy*, 58(3), 243-254. doi:10.1002/jaal.345

Zheng, B., Lawrence, J., Warschauer, M., & Lin, C.-H. (2015). Middle school students' writing and feedback in a cloud-based classroom environment. *Technology, Knowledge and Learning*, 20(2), 201-229. doi:10.1007/s10758-014-9239

Jia Li & Zahra Harbi

University of Ontario Institute of Technology, Oshawa, Canada

Jia.li@uoit.ca - zahra.harbi@uoit.net

Analyzing open information: a case study of alignments between mobile assisted language learning (MALL) programs' functionality and language acquisition theories

Bio data



Jia Li is an Associate Professor at the Faculty of Education, University of Ontario Institute of Technology. She received her masters and doctoral degree in second language education at the Ontario Institute for Studies in Education, University of Toronto. She was a Canada-U.S. Fulbright Scholar at Harvard Graduate School of Education. Her research focuses on data-driven innovative language instruction using new technologies for linguistically diverse students and English language learners, and technology enhanced vocabulary learning and reading strategies and writing instruction.



Zahra Harbi is a current Masters student at the Faculty of Education, University of Ontario Institute of Technology. She received her Honours Bachelor of Science at the University of Toronto. Her research interests include translanguaging, technology-assisted language acquisition, e-Learning and in particular mobile-assisted language learning.

Abstract

Mobile-assisted language learning (MALL) programs have gained increasing acceptance among English language learners (ELLs). However, recent literature has indicated that mobile-assisted learning programs which are predominantly used for learners' self-access learning have shown little effectiveness (Chen & Denoyelles, 2013; Burston, 2015; Stockwell, 2010). Many factors can influence the impact of mobile programs and second language (L2) learners' attitude, learning behavior and outcomes (Li, Cummins & Deng, 2017; Li & Cummins, accepted). One foremost and critical question we could ask is if the designs of these MALL programs are aligned with data-driven language acquisition theories, which have been proven to be effective in guiding teaching and learning strategies for L2 learners.

The proposed case study conducts a critical analysis of the features and content of three MALL programs, Duolingo (200 million users¹), Innovative 101 Learn Languages (eight million users¹), and Babbel (one million users¹) in light of language acquisition theories, specifically focusing on L2 vocabulary acquisition. This study collects open, public data available on MALL program websites, and relevant information from reliable online sources to investigate the alignments between their features and content design of the three MALL programs, and any theoretical basis of language instruction and acquisition.

Our preliminary results indicate that the current designs of programs showed some awareness of language instruction strategies; however more clear and structured alignments should be integrated into the future programs, and in particular, effort has to be made to explicitly focus on specific aspects of language skills with the content contextually

relevant to target learners with properly escalated levels of difficulties. The majority of user reviews, particularly positive comments, are centered on metacognitive and affective strategies, and most negative comments are cognitive strategy- and memory strategy-related.

Conference paper

Burston's (2015) review of 291 MALL studies: "statistically reliable measures of learning outcomes are few and far between...even more so, the paucity of statistically reliable learning outcome data stems from the short duration of projects and small numbers of students involved" (p. 4). Additionally, our review found specific methodological gaps identified in vocabulary-focused MALL programs used in the intervention studies. These include that vocabulary instruction was often isolated from reading development and had no affinity to curricular integration; few MALL programs were tailored to specific levels of students' language skills (Li et al., 2017). As we are unable to locate literature directly addressing the programs' design in responding to specific language teaching and learning principles, the proposed case study conducts a critical analysis of the three MALL programs—Duolingo, Innovative 101 Learn Languages and Babbel—each with a large user base. This study will collect open, public data available to answer three research questions as follows.

Research questions

1. Do any of the chosen MALL programs provide a description of their features and content design based on any theoretical basis of language instruction and acquisition? If yes, how does the design reflect data-driven language instructional and learning strategies as described²¹?
2. Do any of the chosen MALL programs clearly demonstrate alignments between their features and content design and any theoretical basis of language instruction and acquisition? If yes, how does the design reflect data-driven language instructional and learning strategies?
3. What are major feedback points by end-users for the chosen MALL programs, and does any of the feedback reflect any theories of language acquisition, and data-driven language instructional and learning strategies?

Methods

For this case study, we have conducted a structured analysis of three mobile language learning programs/apps from two aspects. First, to assess the applications, which we downloaded from the Apple iTunes store onto an iPhone 6s Plus, we used a thorough coding scheme of language programs (Li, Geva, Demmans Epp, Snow, & Biemiller, 2017, in preparation) and also adopted Oxford's (1990) framework of language learning strategies with referencing the more recent work on vocabulary strategies (Schmitt, 1997, 2008; Tseng & Schmitt, 2008) in technology support environments (Li, 2009, 2018). Second, we apply thematic analysis in light of theoretical framework and research findings mentioned above to recent 200 user reviews for Babbel and Duolingo and 96 user reviews for Innovative 101 Learn Languages, which are available to the public and were extracted from the app store. Please see the basic information of the three applications below. It is expected that user reviews—an open data source for the present study—well represent the group who are interested in using programs to learn English and are more frequent users than others. Their feedback, in our opinion, should

²¹ "Data-driven language instructional and learning strategies as described" refers to instructional and learning strategies that programs claim to applied in light of langauge acquistion theories and/or based on research results.

be considered as one of valuable source in triangulating data in the assessment of programs we selected.

MALL program	Innovative 101 Learn Languages	Duolingo	Babbel
Homepage	https://www.innovativelanguage.com	https://www.duolingo.com	https://www.babbel.com
Operating Systems	Web-based program and mobile application on iOS (iPhone/iPad) & Android	Web-based program and mobile application on iOS (iPhone/iPad) & Android	Web-based program and mobile application on iOS (iPhone/iPad) & Android
Information page on iOS App Store	https://itunes.apple.com/us/app/innovative-101-learn-languages/id668386019?mt=8	https://itunes.apple.com/ca/app/duolingo/id570060128?mt=8	https://itunes.apple.com/ca/app/babbel-learn-languages/id829587759?mt=8
Language(s)	34 languages	30 languages	14 Languages
Target Learner Levels	“absolute beginner to seasoned speaker” ²	choose “beginner” to begin with the basics, or take a placement test to find out their level ³	“both beginners and more advanced learners” ⁴
User base	500+ million downloads ⁴ 8 million users ⁵	200 million learners ⁶	Over 1 million active subscribers ⁷
Affordability	Free (e.g. one week trial)	Free	Free (demo)
Paid Subscription	Yes (basic, mobile, premium, premium plus version)	Yes (buy points—“gems”—to improve “health” scores; “Duolingo Plus which removes ads and provides other helpful features” ⁸)	Yes

Preliminary results

Our preliminary results showed that the current designs of the programs reflect the awareness of some data-driven and evidence-based language instruction theories and strategies. For example, Babbel indicated its design focuses on “the strongest academic learning practices and cherry-picked empirically proven, time-tested strategies to teach languages”, providing users “repeated exposures to vocabulary” (Babbel website, n.d.). However, in general, more clear and structured alignments—between technology-supported learning features, instructional content and learner characteristics—need to be integrated into the future programs. Particularly, effort has to be made to explicitly focus on specific aspects of language skills with the content contextually relevant to target learners with properly escalated levels of difficulties.

The results of analysis of the most recent reviews, 200 from Duolingo, 200 from Babbel and 96 from Innovative 101 Learn Languages, have shown that about one third of comments are non-descriptive (e.g., “Love this app. I feel so much more confident learning a new language. Gracias!!”). About 5-10% comments are about requesting that a new language(s) to be added; another 4-10% reported on the functionality issues of programs.

A large percentage of remaining user comments and particularly positive comments across three programs are centered on metacognitive and affective strategies, but most negative comments are cognitive strategy- and memory strategy-related. For example, for Duolingo, 76 of 138 metacognitive strategy-related user comments are positive; 56 of 78 affective strategy-related comments are positive; however, 25 of 43 cognitive strategy-related comments are negatives. Some of these results are consistent with previous research that reported on learners' perspectives primarily on programs' features, but rarely or not at all on the cognitive benefits of learning support using the programs (e.g., Zhang, Song & Burston, 2011; Lu, 2008). Surprisingly very few comments were made by users related to compensatory and social strategies, though some features are provided in the programs to enable learning a second language through interactions and with first language support. Further detailed analysis with data triangulation and results will be reported in a full-length article.

Significance

The exploratory study focuses on some methodological questions within the interests of the 2018 CALL conference. These include how open information and content provided by MALL program developers can be used for research purposes; how researchers evaluate the reliability of feedback information—qualitative by nature—that are provided by the public, such as end-users, a.k.a. L2 learners and instructors; and finally, how we perceive and assess the validity of the open data in responding to research questions such as we proposed. These questions bear critical significance, given the rapid development of information and communication technologies that permeate the lives of young people, as well as their increasing applications in education. It is expected that the results of the study will guide our further research, and ultimately provide teachers of English as a second and foreign language (ESL and EFL) hands-on tools to assess MALL programs and assist their decision-making when adopting the programs in classroom settings.

Endnotes

1. The number of users as of March 24, 2018.
2. According to the website of Innovative 101 Learn Languages as of March 27, 2018 (url: <https://www.innovativelanguage.com/about>).
3. According to the description of the duolingo website as of March 30, 2018: <https://support.duolingo.com/hc/en-us/articles/204641974-How-can-I-skip-the-basics>
4. According to the description of iOS App Store as of March 30, 2018 <https://itunes.apple.com/us/app/babbel-learn-languages/id829587759?mt=8>
5. According to the description of iOS App Store and Google Play as of March 24, 2018 (<https://play.google.com/store/apps/details?id=com.innovativelanguage.innovativelanguage101&hl=en>), and the website of Innovative 101 Learn Languages as of July 2017 (url: <https://www.innovativelanguage.com/about/ourstory>).
6. According to the description of iOS App Store as of March 24, 2018 (url: <https://itunes.apple.com/ca/app/duolingo/id570060128?mt=8>).
7. According to the website of Babbel as of March 24, 2018 (url: <https://about.babbel.com/en/about-us>).
8. According to the description of iOS App Store as of March 27, 2018 (url: <https://itunes.apple.com/app/duolingo-learn-spanish-french-and-more/id570060128?mt=8>)

References

- Chen, B., & Denoyelles, A. (2013). Exploring students' mobile learning practices in higher education. *Educause Review*. Retrieved from:
<https://er.educause.edu/articles/2013/10/exploring-students-mobile-learning-practices-in-higher-education>

Burston, J. (2015). Twenty years of MALL project implementation: A meta-analysis of learning outcomes. *ReCALL*, 27(01), 4-20.

Li, J. (2009). The evolution of vocabulary learning strategies in a computer mediated reading environment. *CALICO Journal*, 27(1), 118–146.
<https://doi.org/10.11139/cj.27.1>.

Li, J. (2018). A resource-orientated functional approach to English language learning. *The Canadian Modern Language Review /La Revue canadienne des langues vivantes*, 74(1), (February/fevrier), 53–78 doi:10.3138/cmlr.3302

Li, J., & Cummins, J. (accepted). The effect of using text messages for English language learners' vocabulary instruction. *Language Learning and Technology*.

Li, J., Cummins, J., & Deng, Q.Z. (2017). Effectiveness of using texting to enhance vocabulary learning: English language learners' perspective. *Computer Assisted Language Learning*, 30(8), 816-843.

Li, J., Geva, E., Demmans Epp, C., Snow, C., & Biemiller A. (2017). A synthesis study: Evaluating the applicability and generalisability of technology-supported vocabulary programs for adolescent ELLs. In Colpaert, J., Aerts, A., Kern, R., & Kaiser, M. *CALL in Context, Proceedings of The XVIIIth International CALL Conference* (pp. 446-451), July 7-9, 2017, UC Berkeley, CA, USA.

Li, J., Geva, E., Demmans Epp, C., Snow, C., & Biemiller A. (in preparation). A synthesis study: Critical analysis of the applicability, and generalisability of technology-supported vocabulary programs for adolescent ELLs.

Lu, M. (2008). Effectiveness of vocabulary learning via mobile phone. *Journal of Computer Assisted Learning*, 24(6), 515–525.

Oxford, R.L. (1990). *Language learning strategies: What every teacher should know*. Boston: Heinle & Heinle.

Schmitt, N. (1997). Vocabulary learning strategies. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 199–227). Cambridge, England: Cambridge University Press.

Schmitt, N. (2008). Instructed second language vocabulary learning. *Language Teaching Research*, 12(3), 329–363. <https://doi.org/10.1177/1362168808089921>

Stockwell, G. (2010). Using mobile phones for vocabulary activities: Examining the effect of the platform. *Language Learning & Technology*, 14(2), 95-110.

Zhang, H., Song, W., & Burston, J. (2011). Reexamining the effectiveness of vocabulary learning via mobile phones. *TOJET: The Turkish Online Journal of Educational Technology*, 10(3), 203–214.

Tseng, W., & Schmitt, N. (2008). Towards a model of motivated vocabulary learning: A structural equation modeling approach. *Language Learning*, 58(2), 357–400.

Shan Li & Zhihong Lu

Beijing University of Posts and Telecommunications, Beijing, China

lism713@163.com - luzhihong@bupt.edu.cn

Enhancing EFL learners' communicative language ability in multimodal educational setting

Bio data



Shan Li is currently a graduate student in Applied Linguistics of Foreign Languages Department at Beijing University of Posts and Telecommunications in China. Her research includes computer-assisted language learning and Sociolinguistics.



Zhihong Lu is Professor of Foreign Languages Department at Beijing University of Posts and Telecommunications where she has been involved in online teaching since 2000. She is author of over 40 research publications and member of the National Foreign Languages Teaching Advisory Board under the Ministry of Education in China. Her research interests include EFL teaching, CALL, and sociolinguistics.

Abstract

Over the past ten years, the digitization in teaching practice in China has provided a multimedia environment for college students. At the authors' university, second-year undergraduates take their English audio-video speaking course (EAVSC) in digital labs. In this course, teachers create a multimodal environment by assigning various language tasks. To investigate the effectiveness of such pedagogical classroom practice in relation to EFL learners' communicative language ability, an empirical study has been conducted in the second author's EAVSC class. The results show that multimodal teaching has a positive effect on promoting EFL learners' communicative language ability. It is expected that this study will suggest some pedagogical implications on implementation of multimodality in CALL and other EFL contexts.

Conference paper

Introduction

Computer technology has revolutionized teaching practice. In College English Curriculum Requirements (Department of Higher Education, 2007), it is required that college English teaching in China needs to adopt "the computer-and classroom-based multimedia college English teaching model" (see Figure 1). Over the past ten years, advanced equipment has been introduced into English classrooms in China to facilitate the teaching and learning process. The digital educational practice has provided a multimedia environment and multimodal learning materials for the students. However, in the field of CALL, much research has been done on multimedia rather than multimodality. In fact, multimedia plays

a significant role in producing multimodality in the classroom. Computerization turns media into computer data (Manovich, 2001: 45). Online materials like images, texts, audios and videos constitute the multimodal content. The modes and media involved in computer-based settings can be more intricate and integrated than what Kress and Van Leeuwen (2001) have discussed. With help of computer technology, both instructors and learners of English as a foreign language (EFL) enjoy more autonomy on selection and combination of modes in the teaching and learning process.

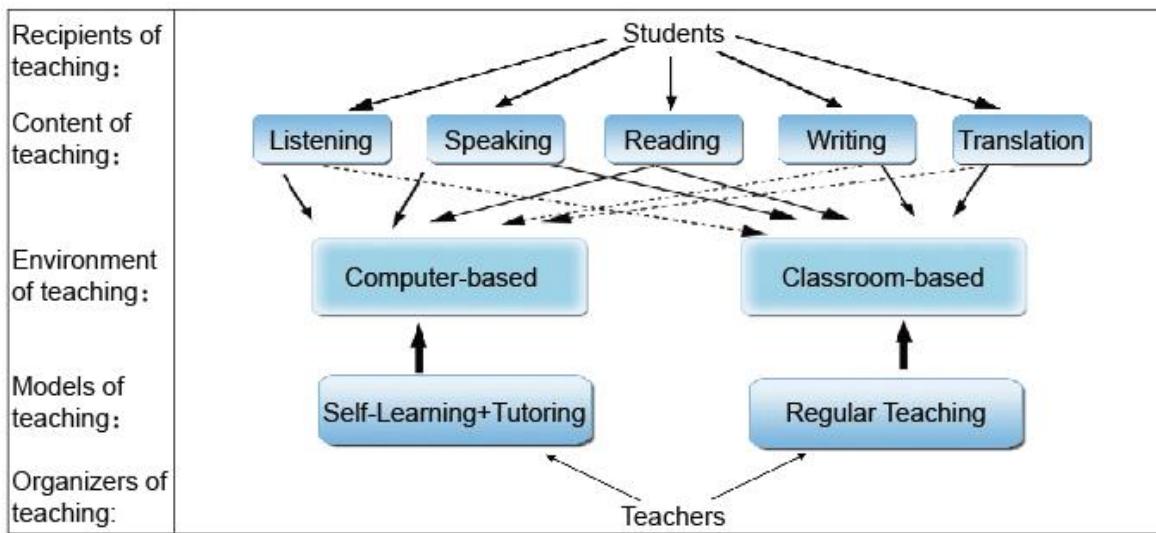


Figure 1. The computer-and classroom-based multimedia college English teaching model (from College English Curriculum Requirements, issued by China's Department of Higher Education in 2007)

At the authors' university, second-year undergraduates take their English audio-video speaking course (EAVSC) in a digital lab equipped with ROFALL system, a self-developed web-based English language skills training system. In this class, students are exposed to a multimodal environment in the language learning process. To investigate the effectiveness of multimodal pedagogical practice in relation to EFL learners' communicative language ability, an empirical study has been conducted in the second author's EAVSC class repeatedly for several teaching sessions in a similar teaching and learning context.

Theoretical framework

Communicative Language Ability Model

Communicative Language Ability (CLA) includes "both knowledge, or competence, and the capacity for implementing or executing that competence in appropriate, contextualized communicative language use" (Bachman, 1990: 84). The framework of CLA that Bachman (1990) proposed consists of three components: language competence (a set of knowledge utilized in communication via language), strategic competence (mental capacity for implementing the components of language competence) and psychophysiological mechanisms (neurological and psychological processes in language use). See Figure 2.

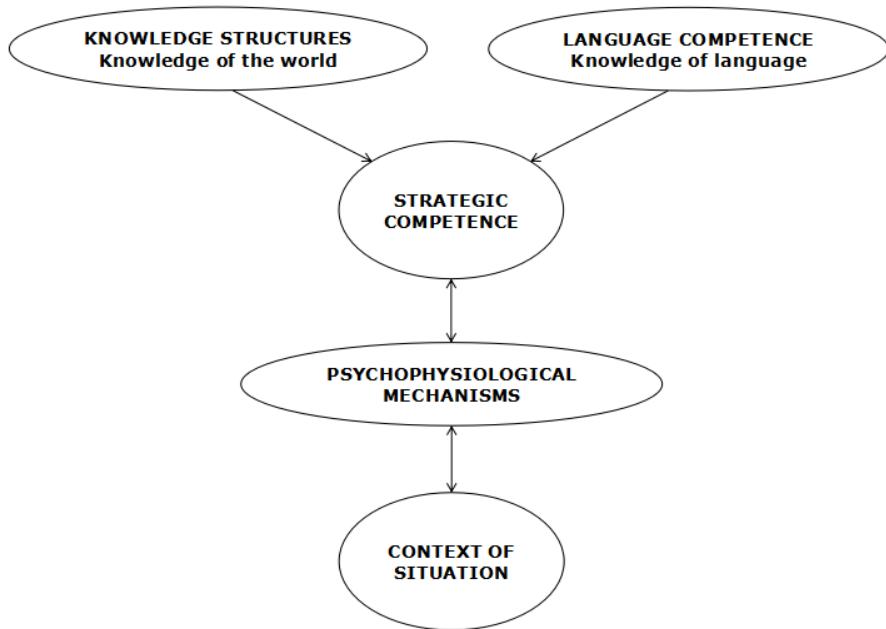


Figure 2 Components of CLA in communicative language use (Bachman, 1990, p.85)

The teaching design in the EAVSC class is based on Bachman's CLA model. The learning materials prepared by the teacher provide knowledge structures for the students as well as create the context of situation (the topic of the unit). In-class activities including role play, pair work, group discussion, summary writing, and personal statement are often assigned under the same topic. In each task, students try to create and negotiate meanings by implementing their acquired knowledge of the language, i.e. English.

Output Hypothesis

In the Output Hypothesis, Swain (1995) asserts that learning takes place when a learner encounters a gap in his or her linguistic knowledge in producing the second language (L2). By noticing this gap, the learner may be able to modify his output so that he learns something new about the language. She defines three functions of output: 1) Noticing function: learners encounter and notice the gaps between what they want to say and what they can say. 2) Hypothesis-testing function: a learner tests the tacit hypothesis underlying his or her utterance and receives feedback from an interlocutor. This feedback enables reprocessing of the hypothesis if necessary. 3) Metalinguistic function: learners reflect on the language they learn, and thereby the output enables them to control and internalize linguistic knowledge.

The teaching practice in this EAVSC class is in accordance with the Output Hypothesis. The learning materials here serve as language input and the speaking tasks are assigned to achieve the language output from the students. In the process of accomplishing every task, students notice their linguistic problems and assess if they can express precisely the meaning they wish to convey. Then they modify their language according to the feedback from others to produce more logical and organized output. In this dynamic process, students also update their knowledge structure to solve new communication problems, hence enhancing their communicative language ability.

Pedagogical unit

The multimodal pedagogical teaching model in this research has been used repeatedly for several teaching sessions in a similar teaching and learning context. Each session lasts for one semester. At the beginning and the end of each semester, the students are required to take the same format of a pre- and post-test of integrated listening-writing-speaking tasks along with follow-up questionnaires. The questionnaire contains three

parts. The first part consists of items on personal information of the students. The second part is to investigate the students' attitude on the task design in the test and how they perform in each task. The third part includes items on students' perceptions of EAVSC and English learning. The learning process of each student can be tracked during the whole semester.

In a regular EAVSC class during the rest of the semester, the teaching process includes reading and watching learning materials (texts, images, audios and videos), output activities on a controlled topic including role play, pair work, group discussion, summary writing and personal statement. Online learning materials are processed and developed to serve as the target language input or lead in topics at the beginning of each class. In this part, the teacher introduces the topic of the unit and provides relevant background information between learning materials. Then the teacher assigns speaking tasks. In pair work, role play or group discussion, students are randomly paired or grouped by the system (equipped in the digital lab) to perform designated tasks in the textbook. After these speaking tasks, students are required to conduct a 10-minute online writing task under a given topic. The class usually ends up with a 1-minute personal statement under the same topic as the writing task.

All the data from classroom activities can be collected through the lab equipment. The data from tests, homework assignments, and questionnaire feedback can be generated and collected through ROFALL system (see figure 3 & 4).

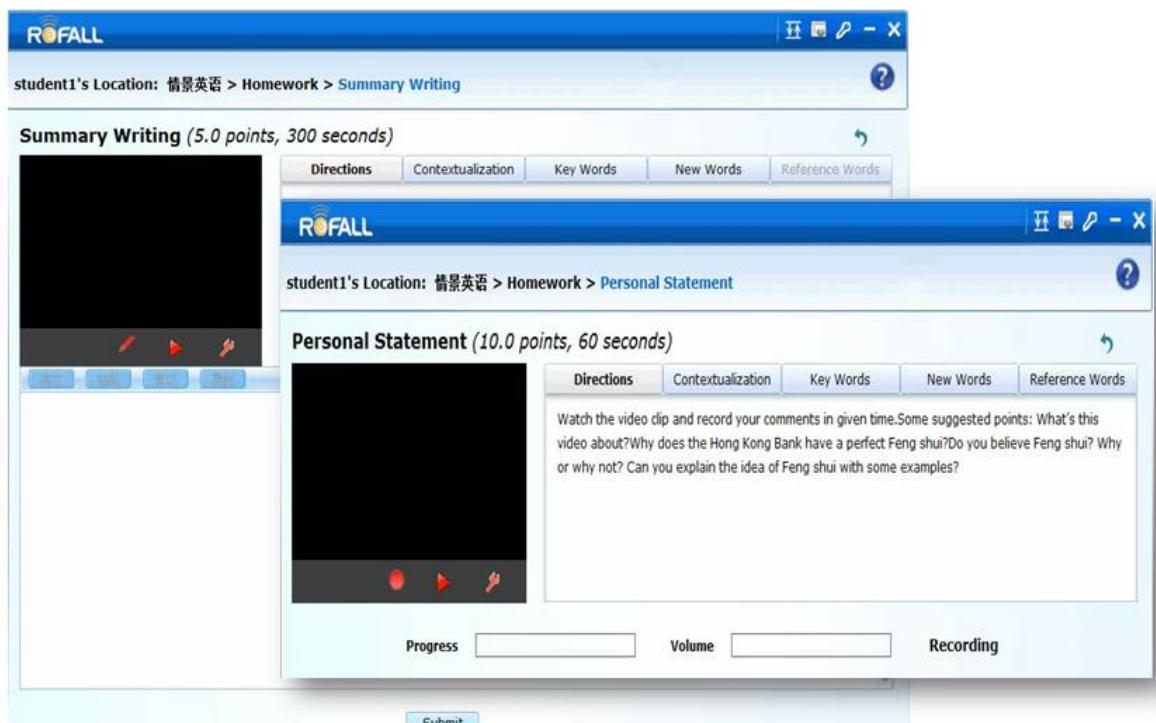


Figure 3. Screenshots of ROFALL system (students' interface)



Figure 4. Screenshots of ROFALL system (teacher's interface)

Perceptions of students

Students' questionnaire feedback of the recent four teaching sessions, from March, 2016 to January, 2018, was analyzed in this part. The 743 copies of questionnaire responses focus mostly on learners' expectations and their feedback on the EAVSC class. In the pre-test follow-up questionnaire, students were asked to rank the given options regarding what they would like to learn most from the course and what they think the teacher's most important role is in the class. The top answers were "communicative abilities in English" and "focus more on developing students' CLA". The expected role of the teacher is an instructor who manages class activities. In these responses, students preferred group discussion as the most frequently used activities in the class. The results of the questionnaire feedback can be used for needs analysis and the adjustment of teaching and task design of this EAVSC class.

The feedback from the post-test follow-up questionnaires showed that students were generally satisfied with the EAVSC class and they thought this class had helped them with listening and speaking skills. The percentages of students who were satisfied with the teaching strategies of speaking activities (group discussion → pair work → personal statement) in the four sessions were 95.7%, 99.0%, 97.0% and 97.5%. The students believed speaking tasks on an assigned topic help to enhance their language ability in terms of vocabulary, fluency, logic and confidence. In their responses to the questionnaire, about 80% of the students believed that the novel teaching method involving various speaking activities and applications of electronic equipment played a significant role in their English learning. The degree of satisfaction with ROFALL system was around 90%.

Conclusion

The teaching in EAVSC class combines various modes. Royce (2002) states that activities based on multimodality can enrich learning experience and facilitate English learning through visual-verbal synergy. The application of computer technology helps with configuring and integrating different modes in the learning context. The feedback from the students showed that the learners had a favorable attitude toward multimodal teaching method. The configuration of various modes in the learning process has a positive effect on promoting EFL learners' communicative language ability. Through interacting with multimodal content, the learners have a better intake of the target language input and enhancement of language knowledge. Computer technology makes it possible for the instructor to arrange and track multimodal activities in the classroom.

This long-term empirical research has gathered a considerable amount of original data with a view to the English learning process of Chinese college students. Besides the information provided by the learners through questionnaires, a variety of data including students' basic information, test scores, spoken audios were collected in this research. All the data can be further analyzed to study the teaching and learning process in EAVSC classes. Such research offers instructions on the improvement of teaching practice and learning environment in Chinese EFL context. It is expected that this study will suggest some pedagogical implications on implementation of multimodality in other EFL contexts as well.

References

- Bachman, L. F. (1990). *Fundamental considerations in language testing*. Oxford: Oxford University Press.
- Department of Higher Education. (2007). *College English curriculum requirements*. Beijing: Foreign Language Teaching and Research Press.
- Kress, G. R., & Van Leeuwen, T. (2001). *Multimodal discourse : the modes and media of contemporary communication*. London: Hodder Arnold.
- Manovich, Lev. (2001). *The Language of New Media*. Cambridge, MA: The MIT Press.
- Royce, T. (2002). Multimodality in the TESOL classroom: exploring visual-verbal synergy. *Tesol Quarterly*, 36(2), 191–205.
- Swain, M. (1995). Three Functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principle and Practice in Applied Linguistics: Studies in honor of H.G. Widdowson* (pp. 125-144). Oxford: Oxford University Press.

Anthony Y. H. Liao, Tosh Yamamoto*, Wen-Chi Vivian Wu, Meilun Shih & Yi Ting Elsie Lee**

Asia University, Taichung, Taiwan

*Kansai University, Osaka, Japan

** National Taiwan University, Taipei, Taiwan

dr.tonyliao@gmail.com - soetosh@gmail.com - vivwu123@asia.edu.tw - mshih63@gmail.com - lit8425@gmail.com

Data solicitation for PBL in global teams in adaptive learning

Bio data



Anthony Y. H. Liao received his Ph.D. degree in computer science and engineering from the University of Louisville, Louisville, Kentucky, U.S.A., in 2001. He is currently an associate professor and chairman in the Department of M-Commerce and Multimedia Applications at Asia University, Taiwan. Dr. Liao is a senior member of IEEE, and a member of ACM. His research interests include E-Learning, computer assisted language learning, artificial Intelligence, management information systems, and E-Commerce.



Tosh Yamamoto is a professor at the Center for Teaching and Learning at the Kansai University in Osaka, Japan. He is currently an Associate Director for the Division of Promotion of Educational Development. Tosh is an educational specialist for curriculum, instruction, and media informatics ranging from the design for the educational paradigm at the institutional level, on the one hand, and for the course design to ePortfolio design enhanced with active learning activities, on the other. For the last few years, Tosh has been developing curriculum for Liberal Arts Education for

Collaborative Online International Learning (COIL) Program, in which students from various countries in Asia can conduct PBL in Global Teams in order to collaboratively design the sustainable future society.



Wen-chi Vivian Wu, who received her doctoral degree in 2006, is a distinguished professor of the Department of Foreign Languages as well as an associate dean of International College at Asia University in Taiwan. Her recent research areas include CALL, MALL, cross-cultural communication, robotics learning, and learner motivation for English as a global language. She has published extensively on CALL and technology-related prestigious journals, including CALL, System, Computer in Human Behavior, Educational Technology and Society, etc. Over the past few years, she has integrated international experiences into her conversation and writing courses linking her students with college students and university professors in America and Japan. She serves on the editorial board of the CALL Journal, and as a senior advisor of Asian EFL Journal and associate editor of Asian ESP Journal.



Meilun Shih is currently an adjunct assistant professor at the Center for General Education in National Taiwan University (NTU). She also works as an Assistant Director at the Center for Teaching and Learning Development in NTU. Meilun's recent research topics focus on open education resource, learning technology, and teaching and learning for higher education.



Yi-ting Lee is a postgraduate student at the Department of Foreign Languages and Literature at Asia University in Taichung, Taiwan. She has served as a RA for Dr. Wu since the beginning of her graduate study at Asia University.

Abstract

Although adaptive learning is a powerful program to offer learners the learning environment and content based on levels and needs, there are some weaknesses when it comes to adaptive learning in active learning harnessed with PBL/TBL due to the original design in the cognitive educational paradigm.

For such adaptive learning in the cognitive paradigm, as Freda (2016) pointed out, there are seven challenges associated with the adaptive learning paradigm. They are: (1) The need for large datasets. (2) Transfer of data and Metadata among different platforms, (3) Legal regulation of students privacy, (4) Application on any subject (not only structured), (5) Incorporation of learning collaborative processes, (6) The limitations of behaviorist pedagogy support, (7) The restrictions of types of testing. This paper deals with challenges (4), (5), (6), and (7) for the most part.

In an effort to overcome such challenges as (4), (5) (6), and (7) mentioned above, this paper purports to propose teaching strategies for adaptive learning and associated learning data to be sampled for learning analytics in the social constructive paradigm.

This paper is based on the research conducted between Kansai University and Asian Universities/National Taiwan University in the Collaborative Online International Learning (henceforth, COIL) involving students in Asian universities, where PBL is conducted in global teams. The uniqueness of the research is that adaptive learning goes on in the virtual learning environment, where students from various campuses form global teams to extend their learning in PBL. Data from the learning process are not from the prepared or fixed contents or texts, which makes the data sampling and analysis for challenging. This research on adaptive learning in the social constructive paradigm is based on the meta-syllabus, in which a series of milestones are embedded in order to lead students to the final keystone or the goal for a course.

It is proposed that the visualization of the analysis at each milestone repeatedly gives feedback to the learners as well as the team throughout the course. Along the discussion, it is defined what data constitute such analysis.

Furthermore, such data from the milestones and the reflective writings will feed the assessment for each team member as well as for the entire team. In other words, the assessment for the COIL course is double-tiered: one for an individual student, and the other for the team which he/she belongs to. Adaptive learning in the social constructive paradigm in the form of COIL faces many challenges. The research defines such challenges and proposes solutions to them.

Conference paper

Introduction

This paper purports to propose an improved assessment strategy for the learning of the four years of education in higher education.

Given the time of four years for higher education, a student will, of course, spend a third of time for sleeping, which means the student will be awake for two-thirds of the four years for learning. Then, how much out of the two-thirds of the four years for the learning, i.e., face-to-face in classrooms, is linked with the credits for graduation? It is only 8% of the waking hours for most students, which is less than the total accumulation of the time for blinking with eye closed. It is surprising to know that such a small portion of the waking hours is allocated for the academic education to make students ready for the society upon graduation.

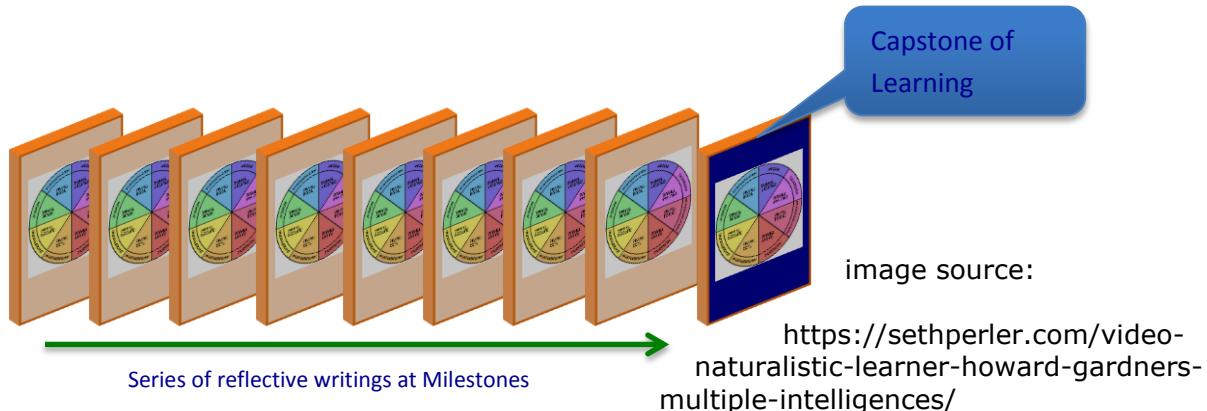
When it comes to the assessment of such learning, only a midterm or a final exam, or one term paper has been used for the proof of learning, where the process of learning is totally ignored and not considered.

Is there any way that the rest of the 80% of the waking hours is incorporated in the data for the assessment in the four years? It is proposed that the data for the assessment in learning must come from the entire waking hours of four years instead of just a fragment of the walking hours.

Proposal of Methodology

In order to have a total reflection of learning in waking hours as the data for assessment, students' meta-cognitive reflective writings stored in ePortfolio were looked at.^{[1][2]}

Students reflected their learning at each milestone of learning in the curriculum. Further, ePortfolio also stored more comprehensive meta-cognitive reflective writings at each capstone stage in the curriculum. See Figure I for ease of exposition.



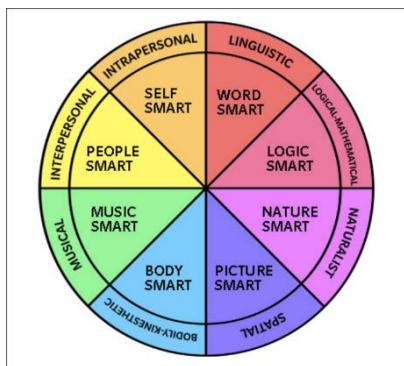
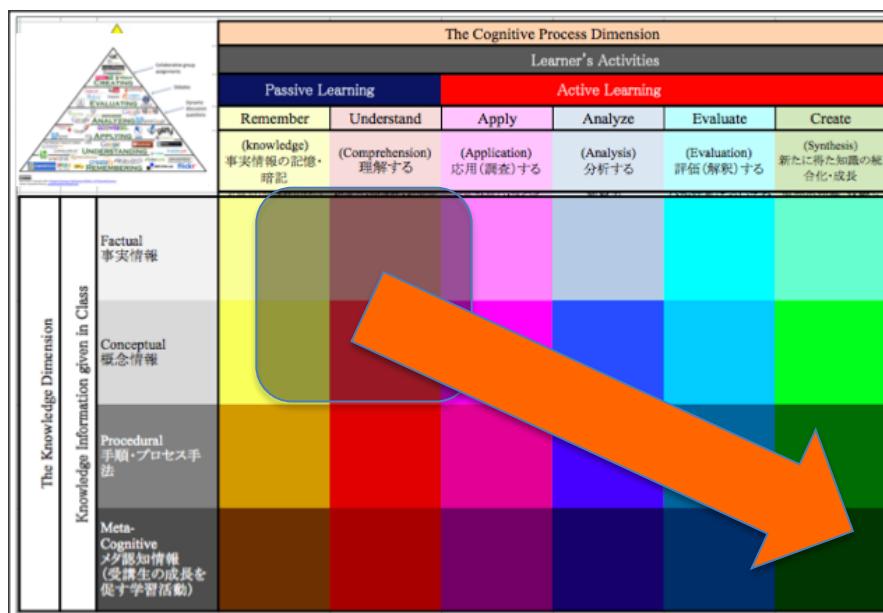


Figure 1. Reflective Writings at Milestones of Learning followed by the Capstone of Learning

Artifacts in ePortfolio guarantee the learning footprints by tracing back the learning paths and, at the same time, the learning figure prints that depict the characteristics in the reflective writings by the learning mind.

Furthermore, it should be emphasized that the realm of learning is not limited to the rote memorization of facts/events and concepts as well as the understanding of such memorization. As the following figure shows, the educational paradigm here includes the entire learning activities.^[3]



The reflective writings fed into the data for learning, which included the eight intelligences claimed by Howard Gardner.^[4] After the analytics of doc2vec by glove or M-GTA, key factor elements for each intelligence were extracted and visualized in terms of heat map along the time line.

Our biggest hurdle is to conduct such analytics not at the cognitive level but at the constructive paradigm, where students themselves will take initiatives in their own learning, i.e., active learning in PBL, in global teams. Recall Freda (2016)'s arguments. This paper purports to propose teaching strategies for adaptive learning and associated learning data to be sampled for learning analytics in the social constructive paradigm.

This paper is based on the research conducted between Kansai University and Asian Universities/National Taiwan University in the Collaborative Online International Learning (henceforth, COIL) involving students in Asian universities, where PBL is conducted in

global teams. The uniqueness of the research is that adaptive learning goes on in the virtual learning environment, where students from various campuses form global teams to extend their learning in PBL. Data from the learning process are not from the prepared or fixed contents or texts, which makes the data sampling and analysis for challenging. This research on active learning in the social constructive paradigm is based on the meta-syllabus, in which a series of milestones are embedded in order to lead students to the final keystone or the goal for a course.

It is proposed that the visualization of the analysis at each milestone repeatedly gives feedback to the learners as well as the team throughout the course. Along the discussion, it is defined what data constitute such analytics.

Furthermore, such data from the milestones and the reflective writings will feed the assessment for each team member as well as for the entire team. In other words, the assessment for the COIL course is double-tiered: one for an individual student, and the other for the team which he/she belongs to. In such a course, in-class learning as well as team-based learning outside the class constitute the basis for the data for analytics.

Conclusion

A recent trend in education seems to focus on strategies to support learners who need help and support for learning, which creates unfair treatment for students who are well off in education. On the other hands, such well-off students also need help in learning in the social constructivism paradigm. In other words, PBL in Global TBL, which cannot be learned in the cognitive manner at the individual base. It was proposed that the learning analytics should be for all learning minds in the paradigm for PBL in Global Teams.

This is just a beginning of the learning analytics in a new paradigm. Research along the line with the elaborated methodology will continue with Taiwanese universities to be reported back.

Acknowledgements

The authors would like to express their gratitude to the Ministry of Science and Technology, Taiwan, R.O.C. for their grant support to this research. The research grant number is MOST 105-2511-S-468-002-MY2.

References

- Barrett, Helen. (2016). electronicportfolio.org. <http://electronicportfolios.com/>
- Barrett, Helen.(2012). Using Technology to Support Alternative Assessment and Electronic Portfolios. <http://electronicportfolios.com/portfolios.html>
- Bloom's Taxonomy. (2012). <http://web1.muirfield-h.schools.nsw.edu.au/mahara/view/view.php?id=5884>
- Gardner, Howard. (1983). Frames of Mind: The Theory of Multiple Intelligences

Hsin-Yi Lien

Ming Chuan University, Taoyuan, Taiwan

Maggielien61@gmail.com

Mining a comparable corpora for cross-language information retrieval

Bio data

Hsin-Yi Lien is an associate professor at Graduate School of Education in Ming Chuan University, Taiwan. Her research interests include Computer Assisted Language Learning, corpus linguistics, TESOL methodology, and reading metacognition.

Abstract

In recent years, a growing number of corpus-based studies that focus on English for a Specific Purpose (ESP) have been conducted. This research has investigated keywords, special terminology, collocations, and metaphors in a variety of subjects, such as business or technology. However, few studies have investigated ESP in the context of religious beliefs or missionary work. Comparable corpora are indispensable resources for research and applications that involve linguistics, translation, and/or natural language processing (NLP). Research on comparable corpora spans numerous topics, from machine translation (MT) to contrastive linguistics. Language distributional analysis has gained a great deal of attention, and the standard techniques of analyzing word alignment in comparable corpora is considered to be a useful method in cross-language distributional semantics. Therefore, a comparable corpora of Buddhist phrasing in Chinese and English could serve as a comparative text for exploring the differences between Buddhist culture in the east versus the west. The current study aimed to (1) compile a Buddhist Chinese English Comparable Corpora (*BCECC*) and (2) generate and compare bilingual terms and collocation lists. This research was conducted in four phases. In the first phase, a Buddhist Chinese corpus (including 20 million texts) and a Buddhist English corpus (including 20 million texts) were compiled. In the second phase, the content similarity of the two monolingual corpora were tested using *PASW version 18* software, and inappropriate texts were deleted. In the third phase, term and collocation extraction were performed using *Sketch Engine*. In the fourth and final phase, two linguists selected the terms and collocations, and then six experts completed a *Likert Scale* questionnaire pertaining to the refined collocations. Finally, the questionnaire data were analyzed using *PASW statistics 18*, which identified collocations that will benefit language learning.

Conference paper

Introduction

Most research on keywords and collocations focus on specific subject fields but only a few studies exploit religious texts. In 2003, Kohnen started to compile an online corpus, *Corpus of English Religious Prose*, which is a diachronic multi-genre corpus that covers English religious prose from 1150 to the 18th century. Several studies were conducted using this corpus (e.g. Boggel, 2009; Gather, 2014; Groeger, 2010; Rutten, 2011). Later Baker, Gabrielatos and McEnery (2013) researched the word "Muslim" in a corpus of 143 million British newspaper articles to find the representative patterns of Islam in this context. A series studies on a Kuan Yin corpus created by Lien, Liu and

Sun (2014a, 2014b) and Lien and Liu (2016) indicated that the word *Kuan* is used more frequently than *Quan*, and high distribution pivot words such as *compassion*, *Bodhisattva*, *Goddess*, *Buddhist*, and *Miao Shan* explain Kuan Yin's image and history. Lien (2017) went on to analyze a Buddhist corpus and identified keywords, collocations and terminology in Buddhist English.

Increasing communication among different religions and growth in spiritual tourism in Taiwan have created a demand for avenues of study for Buddhist culture through the medium of English. Vocabulary knowledge plays an essential role in successful communication (Nation, 2001) but intentional vocabulary learning can fail to transfer information contained in chunks of language, such as collocations and multi-word expressions (McCarten, 2007). A natural way to generate a keyword and collocation list is from a corpus. For learners new to Buddhist culture and history, a comparable corpus with bilingual words and collocations serves as a more accessible approach to study. Therefore, the present study compiled the *Buddhist Chinese English Comparable Corpora (BCECC)* to identify and explain important terminology (e.g. *sutra*), keywords (e.g. *divine*), collocations (e.g. *compassion repentance*), and lexical expressions (e.g. *holy spirit*) featuring in Buddhist history and culture. This corpus represents an invaluable resource for students of religion, spiritual tour guides and Buddhist missionaries.

Research Method

A number of methods exist for comparing documents by extracting features from the text. Kilgarriff (2001) used the most frequent words; Su and Babych (2012) employed cosine similarity measure between feature vectors to compare differences in the frequencies of translations of the keywords. Another approach is the Cross Language Character N-Gram (CL-CNG) model proposed by Mcnamee and Mayfield (2004) using character n-grams to detect syntactic similarities. Machine translation technology (e.g. CL-ASA by Barron-Cedeno et al., 2008) is often used to measure similarity between source and target documents. Kilgarriff (2010) conducted word frequency lists by using comparable corpora to translate a source word by identifying a target word in a similar text. Several methods are utilized to analyze words in comparable corpora, such as the Standard Approach (Fung 1998) which is often used as a baseline. This method involves using the bag-of-words paradigm to represent words of the source and target languages by their context vector, an association measure (the point-wise mutual information PMI (Fano, 1961), the log-likelihood (Dunning, 1993), and the discounted odds-ration (Laroche & Langlais, 2010) in which the translation candidates are ranked according to their similarity score. Researchers have employed a range of methods to construct bilingual lexicons from Chinese-English comparable corpora. Zhang et al. (2006) built a Chinese-English financial lexicon by seed lexicon selection. Haghghi et al. (2008) employed a generative model and Qian et al. (2012) proposed a bilingual dependency model for bilingual lexicon construction. Kilgarriff et al. (2014) conducted the KELLY project, a corpus-based method, to generate monolingual and bilingual word lists for language learning. The KELLY database used Sketch Engine to create vocabulary and collocation lists of nine languages (Arabic, Simplified Chinese, Greek, Italian, Norwegian, Polish, Russian, Swedish) and thirty-six language pairs.

However, as Gollin-Kies (2014) proposed, a more deliberated mixed method design that combines qualitative and quantitative data might enable ESP researchers to produce more significant reports. Accordingly, the objective of this paper was to create bilingual term and collocation lists of Buddhist culture and history by incorporating both quantitative and qualitative methods.

Compilation and Contrast of BCECC

The *Buddhist Chinese-English Comparable Corpora* were created to represent the language used in the practice and study of Buddhism. The corpora contain only written elements, and the three main criteria used to determine size were those suggested by

Nelson (2000) in his compilation of the Business English Corpus: pragmatic, historical and pedagogical. The BCECC are specialized corpora, so we determined a 20-million-word mark for the Chinese corpus and a 20-million-word mark for the English corpus to be representative and balanced. Corpora data were obtained from publicly available texts, including chaptered books, newspapers, journals, magazines and websites. Various online sources such as e-book databases and books were also included, for example *The Oxford Handbook of Global Religions* (2006), *The Encyclopedia of Religion* (2005), *The Cambridge Illustrated History of Religions* (2002) and the *Encyclopedia of World Religions* (1999). The BCECC includes three main categories: origins of Buddhism, history of Buddhism and Buddhist beliefs. The study employed the method proposed by Mikros et al. (2009) to evaluate the comparability of the BCECC, i.e., the text size of each text pair in both languages. The two monolingual corpora were compared using *PASW version 18*. Two-way ANOVA was employed with the text size as the dependent variable and the language and topic as independent variables.

Bilingual Terms and Collocation Extraction

The present study utilized Sketch Engine to identify and analyze collocations, keywords and specialized terminology. The filtered keywords were content words in the corpora; function words, proper nouns, personal names and non-words were removed. We employed the following criteria suggested by Paquot (2010) for the extraction of keywords: (1) keyness, (2) range, (3) evenness of distributions, (4) broadening the scope of well-represented semantic categories. The statistical criteria for the identification of keywords and collocations was adapted from those proposed by Biber and Barbieri (2007); i.e., adopted lexical bundles are only considered a collocation if they appear at least 10 times per million words. A log-likelihood test (Dunning, 1993) was employed to measure significance as the best estimate of keyness, especially when contrasting long texts or a whole genre against a reference corpus (Scott, 2016). We set a relatively low p -value threshold: 0.000001(1 in one million). The clusters with 25.68 or higher keyness values at significance level, $p < 0.000001$ were regarded as key clusters. Mutual information (MI) was utilized to attain collocates of key clusters which have the highest keyness values in their semantic functions occurring in the BCECC. A span of (0, +5) has been identified as suitable for verbs and their collocates, as it covers most of the high-frequency collocations (Bai & Zheng, 2004; Li & Guo, 2016; You & Wang, 2005). The n-gram function in Sketch Engine was used to generate the collocation list. In the present study, collocation is defined as a single word co-occurring in the span of ± 5 words from the reference word, co-occurring at least five times in total across at least five different texts with a MI score of at least 3 and a t-score of at least 2. The MI score refers to the strength of the correlation between the components of the collocations. According to Hunston (2002, p.75), a collocation with MI score of at least 3 and a t-score of at least 2 is considered "a strong collocate, and a certain one". Thus, clusters which met the following quantitative parameter were considered for analysis: (1) normed frequency ≥ 1 per million; (2) MI score ≥ 3 and (3) t-score ≥ 2 .

Expert Review

Two linguists first worked independently according to the above criteria and then discussed the entries they marked differently. After excluding all combinations agreed upon by the two researchers, the remaining entries were once again subjected to expert review in the second phase. In the second phase, six experts from various professional backgrounds including linguistics, TESOL, Buddhist linguistics, and lexicography examined the appropriateness and relevance of each entry to the field of ESP from pedagogical perspective.

Conclusion

The *Buddhist Chinese English Comparable Corpora* will allow researchers and students to retrieve terminology and collocations typical of specific genres and registers. This reference forms the basis for a fundamental comparison between Chinese and English religious culture. Additionally, the BCECC can be used by lexicographers for creating

bilingual terminological databases to assist in terminology translation and for the retrieval of information on the collocations. The obtained frequent keywords, terms, collocations, collocation patterns, and examples in authentic texts can be included in religious English curriculum, which will enable EFL learners in departments of Applied English, of Tourism, and of Religion to understand important terms and collocations in Buddhism more easily. Tour guides who study the generated term and collocation list will be able to explain Buddhist history and culture to foreign tourists more effectively, thereby improving the quality of spiritual tourism in Taiwan. For Buddhist missionaries, the collection of terms and collocations will enhance communication with foreigners.

References

- Bai, M., & Zheng, J. (2004). Study on ways of verb-verb collocation. *Computer Engineering and Applications*, 27, 70-72.
- Baker, P., Gabrielatos, C., & McEnery, T. (2013). Sketching Muslims: A corpus driven analysis of representations around the word 'Muslim' in the British Press 1998-2009. *Applied Linguistics*, 34(3), 255-278.
- Biber, D., & Barbieri, F. (2007). Lexical bundles in university spoken and written registers. *English for Specific Purpose*, 26(3), 263-286.
- Boggel, S. (2009). Metadiscourse in Middle English and Early Modern English religious texts. A corpus-based study. Frankfurt/Main: Peter Lang.
- Dunning, T. (1993). Accurate methods for the statistics of surprise and coincidence. *Computational Linguistics*, 19(1), 61-74.
- Fano, R. M. (1961). *Transmission of Information: A Statistical Theory of Communications*. MIT Press.
- Fung, P. (1998). A statistical view on bilingual lexicon extraction: From parallel corpora to non-parallel corpora. In D. Farwell, L. Gerber, & E. Hovy (Eds), *Proceedings of the 3rd Conference of the Association for Machine Translation in the Americas (AMTA'98)*, 1-16, Langhorne, PA, USA.
- Gather, K. (2014). *Syntactic Dislocation in English Congregational Song between 1500 and 1900- a Corpus-based Study*. Frankfurt/Main: Peter Lang.
- Gollin-Kies, S. (2014). Methods reported in ESP research article: A comparative survey of two leading journals. *English for Specific Purpose*, 36, 27-34.
- Groeger, D. (2010). *The Pamphlet as a Form of Communication: A corpus-based Study of Early Modern Religious Pamphlets*. Aachen: Shaker.
- Haghghi, A., Liang, P., Berg-Krikpatrick, T., & Klein, D. (2008). Learning bilingual lexicons from monolingual corpora. In *Proceedings of ACL-08: HLT*, 771-779.
- Hunston, S. (2002). *Corpora in applied linguistics*. Cambridge: Cambridge University Press.
- Kilgarriff, A. (2001). Comparing corpora. *International Journal of Corpus Linguistics*, 6(1), 97-133.

Kilgarriff, A. (2010). Comparable corpora within and across language, word frequency lists and KELLY project. BUCC, 6th Workshop on Building and Using Comparable Corpora, Valletta, Malta.

Kilgarriff, A., Charalabopoulou, F., Gavrilidou, M., Johannessen, J., Khalil, S., Kokkinakis, S., Volodina, E. (2014). Corpus-based vocabulary lists for language learners for nine languages. *Lang Resources & Evaluation*, 48, 121-163.

Laroche, A., & Langlais, P. (2010). Revisiting context-based projection methods for term translation spotting in comparable corpora. In Proceedings of the 23rd International Conference on Computational Linguistics (COLING'10), 617-625, Beijing, China.

Li, S., & Guo, S. (2016). Collocation analysis tools for Chinese collocation studies. *Journal of Technology and Chinese Language Teaching*, 7(1), 56-77.

Lien, H. Y., & Liu, C. (2016). Corpus-driven analysis of frequent keywords and collocations in religious corpus – An analysis of Kuan Yin Text. *Taiwan International ESP Journal*, 8(1), 32-60.

Lien, H. Y., Liu, C., & Sun, J. C. (2014a). High frequency of collocations of nouns in Kuan Yin corpus. Paper presented in The Fourth Asian Conference on Language Learning, Osaka, Japan.

Lien, H. Y., Liu, C., & Sun, J. C. (2014b). A corpus-based analysis of Kuan Yin discourse. Paper presented in Tri-ELE Conference, Bangkok, Thailand.

Lien, H. Y. (2017). The Analysis of Religious Corpus. *Conference Proceedings of the International Journal of Arts & Sciences*, 10(2), 305-306.

Mikros, G. K., Tsakona, V., Drakopoulou, M., Koutra, A., Triantafylli, E., & Trypanagnostopoulou, S. (2009). Developing an English-Greek comparable corpus using web texts. <http://users.ua.gr/~gmikros/Pdf/Mikros%20et%20al..pdf>

Mcnamee & Mayfield (2004). Character n-gram tokenization for European language test retrieval. *Information retrieval*, 7(1-2), 73-97.

McCarten, J. (2007). *Teaching Vocabulary. Lessons from the Corpus. Lessons for the Classroom*. New York: Cambridge University Press.

Nation, P. (2001). *Learning Vocabulary in Another Language*. Cambridge: Cambridge University Press.

Nelson, M. (2000). A corpus-based study of the lexis of business English and business English teaching materials, unpublished thesis. University of Manchester, available at <http://users.utu.fi/micnel/thesis.html>

Paquot, M. (2010). *Academic vocabulary in learner writing: From extraction to analysis*. London: Continuum.

Qian, L. H., Wang, H. L., Zhou, G. D., & Zhu, Q. M. (2012). Bilingual lexicon construction from comparable corpora via dependency mapping. In *Proceedings of COLING: Technical Papers*, 2275-2290.

Rutten, T. (2011). *How to Do Things with Texts: Patterns of Instruction in Religious Discourse 1350-1700*. Frankfurt: Peter Lang.

Scott, M. R. (2016). WordSmith Tools Manual Version 7.0. Liverpool: Lexical Analysis Software.

Su, F., & Babych, B. (2012). Development and application of a cross-language Document Comparability Metric. In LREC, 3956-3962.

You, L., & Wang, S. (2005). Rules and distributions and Chinese verb-verb collocations. Computer Engineering and Applications, 23, 179-181.

Zhang, Y., Sun, L., & Li, F. (2006). Bilingual dictionary extraction for special domain based on web data. Journal of Chinese Information Processing, 20(2), 16-23.

I-Ting Doris Lin, Yu-Cheng Vincent Chou, Wen-Chi Vivian Wu & Hsing Chin Lee*

Asia University, Taichung, Taiwan,

*National Taipei University of Business, Taipei, Taiwan.

jalin0928888@gmail.com - v4607@icloud.com - vivwu123@asia.edu.tw - hsingchinlee@ntub.edu.tw

The relationship between university students' behavior and their learning efficiency via idiom-based mobile application: a sequential analysis

Bio data



I-Ting Doris Lin is a graduate student in the Department of Foreign Language and Literature at Asia University in Taiwan. She was the second author of a paper in e-CASE & e-Tech 2017 in Japan as well as the first author of a paper in XVIIIth International CALL Conference at UC Berkeley, USA. Her recent research areas include flipped learning, mobile learning, and Problem-Based Learning.



Yu-Cheng Vincent Chou is a sophomore in the Department of Psychology at Asia University in Taiwan. He is very interested in statistics and currently serves as the teaching assistant of distinguished professor Wen-Chi Vivian Wu in the Department of Foreign language and Literature.



Journal.

Wen-chi Vivian Wu, who received her doctoral degree in 2006, is a distinguished professor in the Department of Foreign Languages as well as an associate dean of International College at Asia University in Taiwan. Her recent research areas include CALL, MALL, cross-cultural communication, robotics learning, and learner motivation for English as a global language. She has published extensively on CALL and technology-related prestigious journals, including CALL, System, Computer in Human Behavior, Educational Technology and Society, etc. Over the past few years, she has integrated international experiences into her conversation and writing courses linking her students with college students and university professors in America and Japan. She serves on the editorial board of the CALL Journal, and as a senior advisor of the Asian EFL Journal and associate editor of Asian ESP



Associate Professor **Hsing Chin Lee** is currently teaching in the Department of Applied Foreign Languages at the National Taipei University of Business, Taiwan. A large portion of her work has been dedicated to English children's literature in belief that she can captivate the attention of English learners. She translated one of Arthur Ransome's books, *Swallows and Amazons* (published by Comercial Press). Her articles have appeared in journals such as *Journal of Computers in Human Behavior*.

Abstract

Although mobile applications for learning English are omnipresent and widely available, most of them are for vocabulary acquisition. Mobile applications for learning English idioms are rare. The purpose of this study was to develop an animation-based application for learning idiomatic expressions, which is called "My English Idiom Learning Assistant" (MEILA), and to explore the different learning behaviors that influenced learner outcomes between high proficiency learners and low proficiency learners. The instructional goal of the current study was to improve the idiomatic understanding of learners via MEILA. Furthermore, the experimental design enabled the researchers to access user learning logs from MEILA's database, to explore the relationship between the learning outcomes and the usage of MEILA.

Conference paper

Introduction

Idioms are important because they are functional elements of language, which are frequently used in daily life situations (Strässler, 1982). They are groups of words whose meaning is different from the meanings of the individual words and are used by people at particular times or places (Oxford Dictionary). The usage of idioms enriches the content of a conversation and enables learners to integrate into a local context. This daily expression is considered to be essential in the Taiwanese English learning environment (Chen Hsieh, Wu, Chen, Yang & Chien, 2016; Irujo, 1986).

Although De Caro and Edith (2009) indicated that the integration of idioms is vital to reach higher English levels, teaching or learning English idioms is not an easy task, especially for English as Foreign Language (EFL) learners. Idioms have their specific meanings as well as cultural and contextual backgrounds (Mäntylä, 2004), which can be time-consuming for instructors to teach and for students to master (Asl, 2013). Therefore, innovative EFL instructors strive to seek cutting-edge tools which incorporate various forms of technology to help the learners master their idiomatic acquisition, including mobile assisted language learning (MALL).

Numerous studies have indicated that MALL creates a flexible environment for enhancing learning efficiency because it embraces various functions for learning without time and space limitations (Bachore, 2015; Ballance, 2012; Foti & Mendez, 2014). However, most mobile applications are test-driven and focus on vocabulary acquisition instead of English idioms (Kukulska-Hulme, 2013). Thus, the researchers developed a mobile application: My English Idiom Learning Assistant (MEILA) to enhance English idiomatic learning.

In the previous studies, research on MALL usually probed into the outcomes of learning performance, rather than the analysis of learning behaviors (Burston, 2015; Hsu, 2015).

However, understanding the behavioral patterns of learners is vital for researchers, instructors, and even applications designers since they help with understanding of the effective actions or functions during the learning procedure (Lai & Hwang, 2015). Therefore, the purpose of this study was not only to enhance student performance of English idioms through MEILA but also to analyze user learning behavioral patterns through the MEILA database and investigate utilization of the specific functions in MEILA.

Accordingly, the following research questions guided the current study:

1. Were there differences in the learning behavioral patterns in using MEILA between high and low proficiency learners?
2. What were the student's attitudes towards using MEILA to learn English idioms?

Methods

Participants

The participants consisted of 63 freshmen non-English majored students from two classes in one private four-year comprehensive university in central Taiwan. The participants were between the ages of 18-19. The average score of their TOEIC was around 450 to 550, which means that they were in the threshold level of CEFR.

Research design

MEILA is a Mobile application available for free download with both Android and IOS versions. It was designed and created by the researchers and contains 50 frequently-used idioms with interesting short-dialogue animations, example sentences, as well as instructional videos (Fig. 1, 2, 3). Functions of MEILA provide users the opportunities to practice their listening and speaking skills. Users are allowed to upload their idiomatic sentence-making and idiomatic sentence-recording tasks (Fig.4, 5, 6).

After the introduction of MEILA to learners, the pre-test was conducted. Students performed the learning activities in the following three weeks. The post-test and interview conducted after the activity had a similar structure with the same difficulty as the pre-test (Fig.7). The instructional goal of the current study was to improve the idiomatic understanding of participants via MEILA. Furthermore, the experimental design enabled the researchers to access user learning logs from MEILA's database and explore the relationship between the learning outcomes and the usage of MEILA.



Fig.1 MEILA's catalogue page

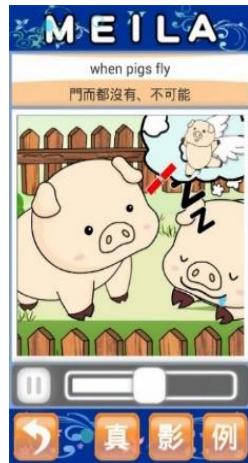


Fig.2 Fun animations



Fig.3 Videos for instruction



Fig.4 Listening comprehension



Fig.5 Speaking practice



Fig.6 Sentence making

Data analysis

In order to answer research question one, the responses to the users' learning behavioral patterns recorded in the database of MEILA were coded and analyzed through the use of the GSEQ. In order to observe their differences in learning behaviors objectively, the researchers grouped the participants into two categories according to the mean scores of their post-tests ($M=62$). The students whose post-test scores were above 62 were considered as being high proficiency learners, while the others were low proficiency learners.

For research question two, six students were interviewed. The interview questions included attitudes about the procedure of the self-learning and effects of MEILA.

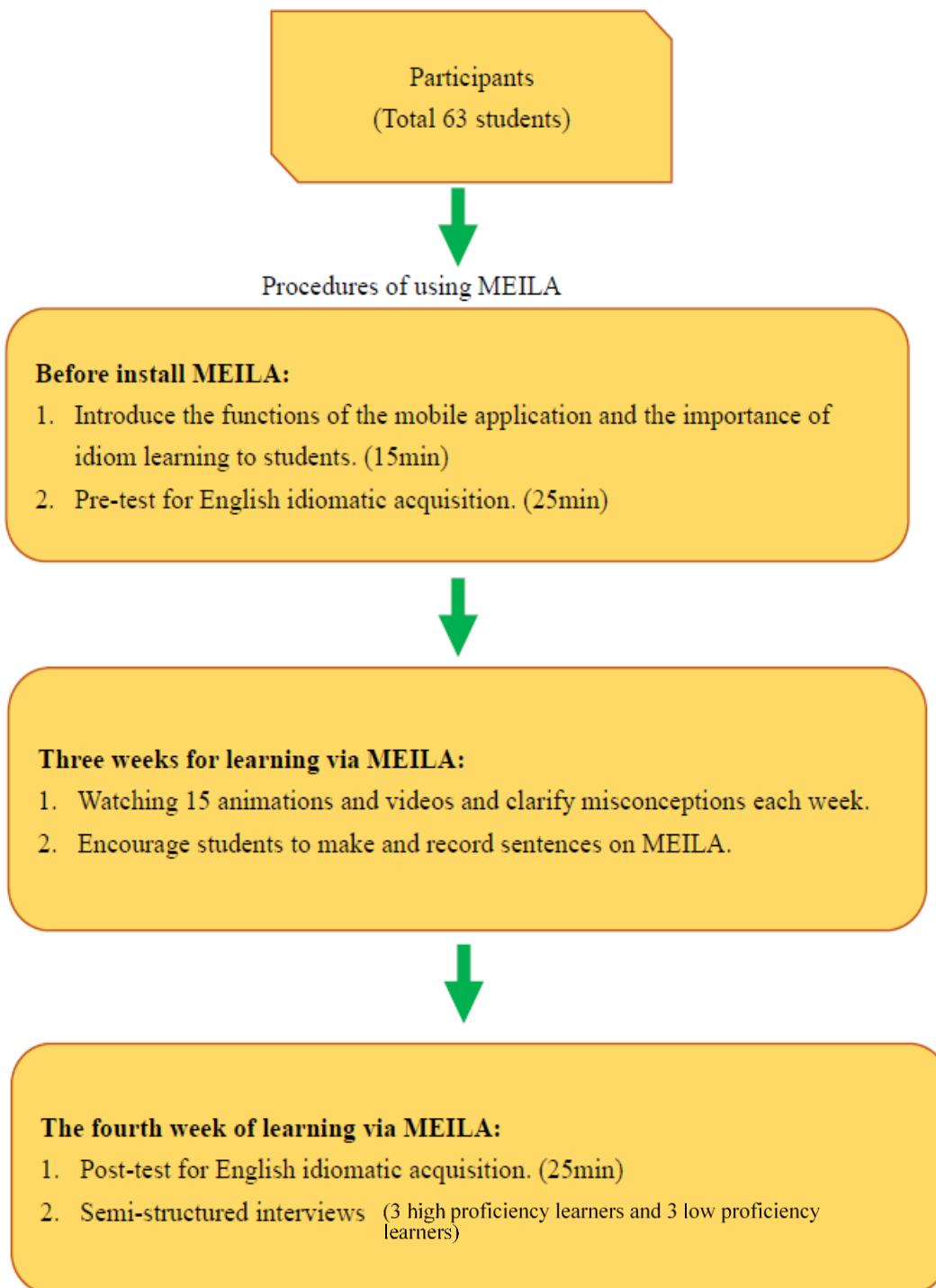


Fig. 7 Procedure of the study.

Results & Discussion

1. Were there differences in the learning behavioral patterns in using MEILA between high and low proficiency learners?

A total of 5,113 learning actions from 63 students were collected in the database of MEILA from May 1st to May 20th in 2017. The database showed 4,052 learning actions of high proficiency learners (127 actions per student), while low proficiency learners performed 1,061 learning actions (34 times per student). Table 3 shows the coding scheme of learning behaviors in MEILA.

Table 3. The coding scheme of learning behaviors in MEILA.

Code	Behavior	Description and Example
A	Start learning	Whenever users start learning, they have to log into the home page of MEILA.
B	Choose the idiom	Students choose the idiom for learning in this category interface.
C	Play the animation	The animation can enhance memory of the idiomatic acquisition through the interesting content.
D	Play the video	The video can instruct understanding of the idioms.
E	Sentence reading	Users can read the example dialog and extend vocabulary through the word bank in this interface.
F	Conversation listening	Listen to the conversation. Users can listen to the dialog.
G	Submit the sentence making task	Users can make sentences with the idiom. They can redo their assignments until they are satisfied with their work.
H	Submit the recording task	Users can record the sentence with the idioms. They can redo their assignments until they are satisfied with their work.
I	Log out.	End the learning.

Table 4 shows the frequency and percentage of individual coded behaviors of the high proficiency learners and low proficiency learners. For high proficiency learners, the learning action "Play the animation" (C) was the most-frequent action (23%), while "submit the recording task" (H) was the least frequently used (2%). For the low proficiency learners, "Sentence reading" (E) was the most-frequent action (31%), while "submit the recording task" (H) was also the least frequently used (1%).

Table 4. the frequencies of coded behaviors

Group	A	B	C	D	E	F	G	H	I	Total
High proficiency learners	236 (6%)	1119 (28%)	915 (23%)	263 (7%)	820 (20%)	417 (10%)	141 (3%)	101 (2%)	40 (1%)	4052
Low proficiency learners	101 (10%)	350 (33%)	58 (5%)	17 (2%)	326 (31%)	80 (7%)	95 (9%)	13 (1%)	21 (2%)	1061

The significance level of learning sequence patterns can be represented in an adjusted residuals table by calculating z-score values between the coded behaviors of the students. If the z-value is greater than + 1.96, it indicates that the learning sequence reaches the significance level ($p < 0.05$) (Table 5 & 6).

Table 5. Adjusted residuals table of high proficiency learners in MEILA.

A	B	C	D	E	F	G	H	I
A -3.64	24.63*	-8.56	-4.17	-7.98	-5.36	-3.01	-2.53	1.81
B -6.52	-23.86	43.59*	-4.84	4.05*	-13.37	-7.49	-6.31	-1.46
C -3.64	-4.65	-10.53	24.15*	17.99*	-11.67	-6.54	-5.51	-3.06
D -1.25	-1.84	-3.75	-3.91	15.95*	-5.70	-3.19	-2.69	-0.39
E 3.74*	10.14*	-16.16	-8.11	-15.83	22.18*	15.09*	-0.09	2.75*
F 2.15*	-2.28	-11.26	-5.25	-9.68	17.61*	6.09*	23.48*	3.09*
G 2.70*	16.13*	-6.54	-3.19	-6.10	-3.25	-2.30	-1.93	-1.21
H 3.62*	8.52*	-5.04	-2.69	-4.65	0.50	1.35	-1.63	-1.02
I 25.70*	-3.69	-3.23	-1.57	-3.01	-2.02	-1.13	-0.95	-0.60

* $P < .05$

Table 6. Adjusted residuals table of low proficiency learners in MEILA.

	A	B	C	D	E	F	G	H	I
A	-2.82	13.10*	-2.53	-1.34	-7.04	-3.00	-3.30	-1.17	3.04*
B	-5.69	-16.06	8.73*	0.67	24.32*	-6.62	-7.28	-2.58	-1.43
C	-0.53	-3.90	1.02	8.53*	4.84*	-2.28	-2.50	-0.89	-1.13
D	1.89	-0.22	2.29*	-0.52	-0.03	-1.17	-1.29	-0.46	-0.58
E	2.56*	2.38	-5.16	-2.73	-14.36	9.60*	13.68*	-0.56	-0.16
F	1.30	0.31	-2.21	-0.24	-5.14	4.05*	0.41	9.65*	1.22
G	-1.51	12.93*	-2.50	-1.33	-6.96	-2.57	-3.26	-1.16	0.05
H	2.32*	1.53	-0.89	-0.47	-1.87	1.03	-1.16	-0.41	-0.52
I	15.73*	-3.06	-1.05	-0.55	-2.91	-1.24	-1.36	-0.48	-0.62

* $P < .05$

As shown in Figures 8 and 9, the learning behavior transition diagrams of high proficiency learners and low proficiency learners can be obtained based on the adjusted residuals table. High proficiency learners showed active behaviors in the learning procedure. E (sentence reading) and F (conversation listening) were the learning behaviors that high proficiency learners employed frequently, that is, D-E, C-E, E-B, B-E, E-A, E-I, E-G, E-F; E-F, F-F, F-G, F-H, F-I, F-A. Especially, these two behaviors also had connections with C (play the animation) and D (play the video), which underscore the impacts of visual materials in MEILA. For low proficiency learners, E was also the significant learning behavior: E-C, E-F, B-E, E-A, E-G. However, their behaviors C and D didn't show the close connection with E.

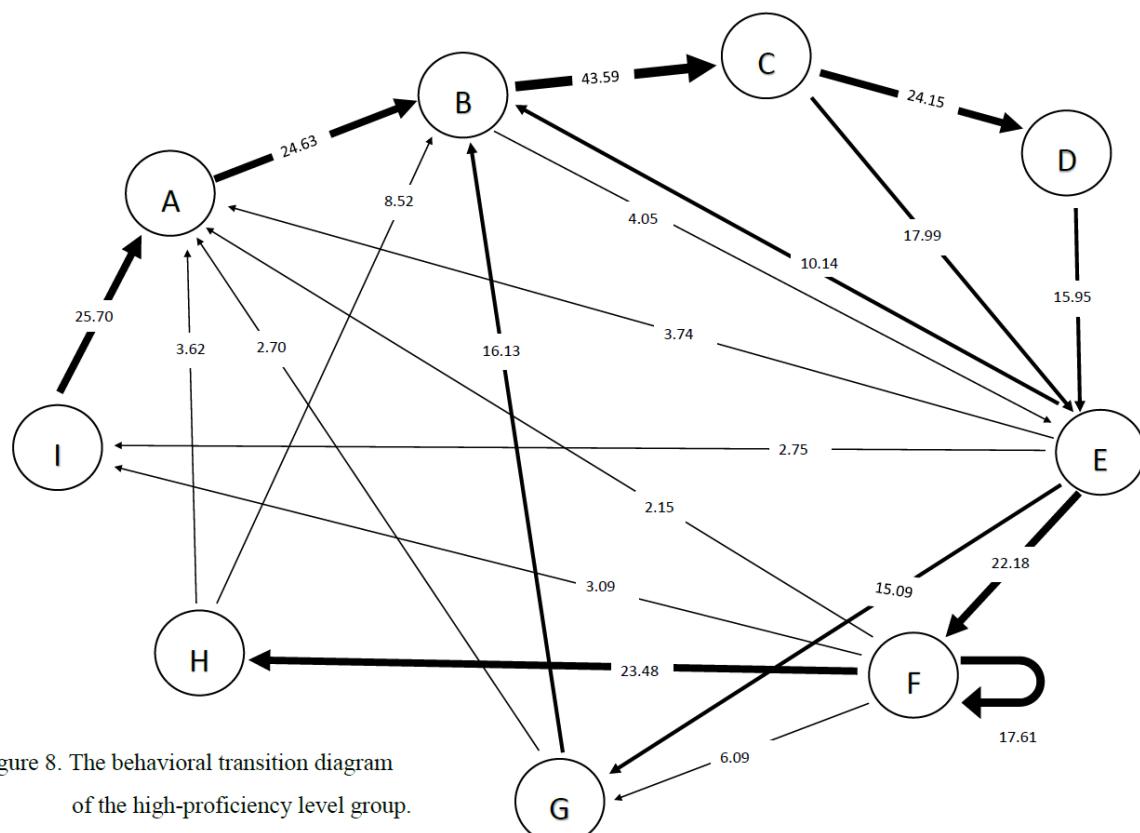


Figure 8. The behavioral transition diagram of the high-proficiency level group.

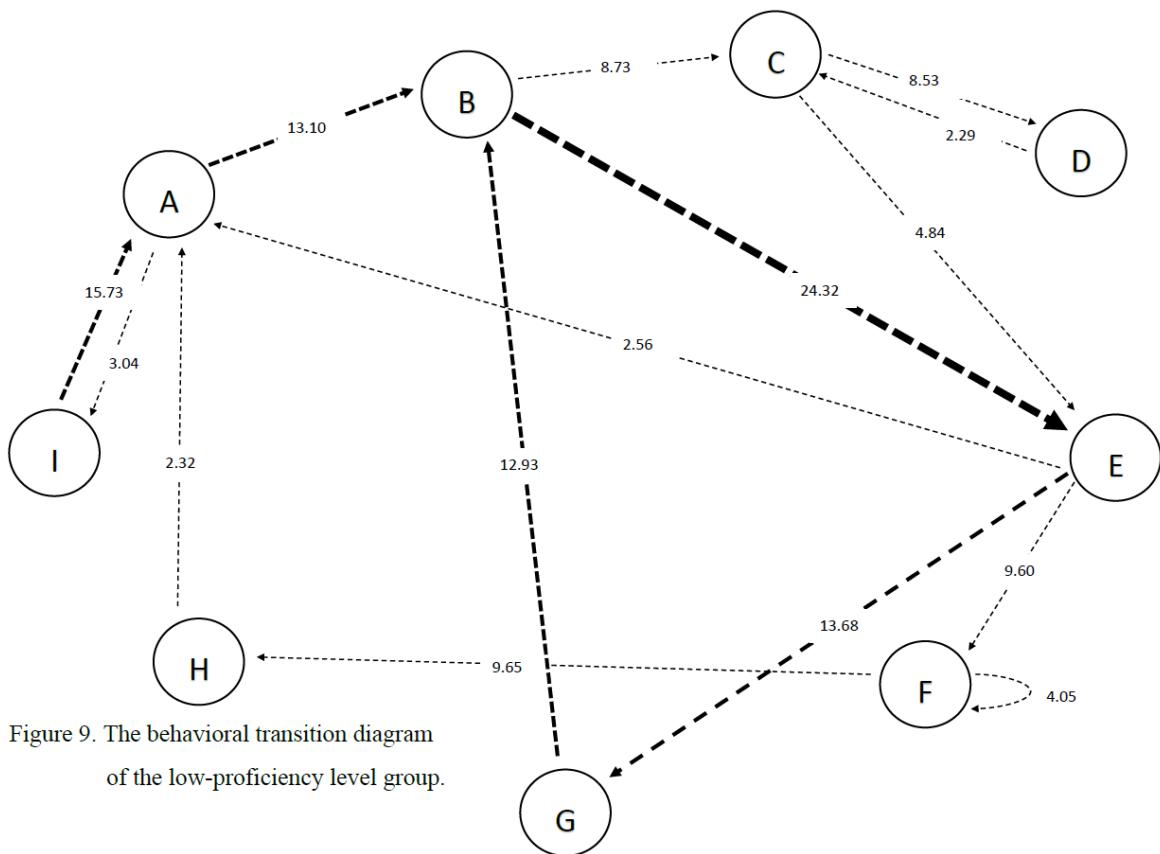


Figure 9. The behavioral transition diagram of the low-proficiency level group.

Some different learning behaviors were shown between the groups of high and low proficiency learners. Fig. 10 indicates that low proficiency learners lacked use of D-E, E-B, E-I, H-B, F-A, F-I, F-G, G-A. Specially, A-I showed that students with low motivation logged out of MEILA right away after they logged in.

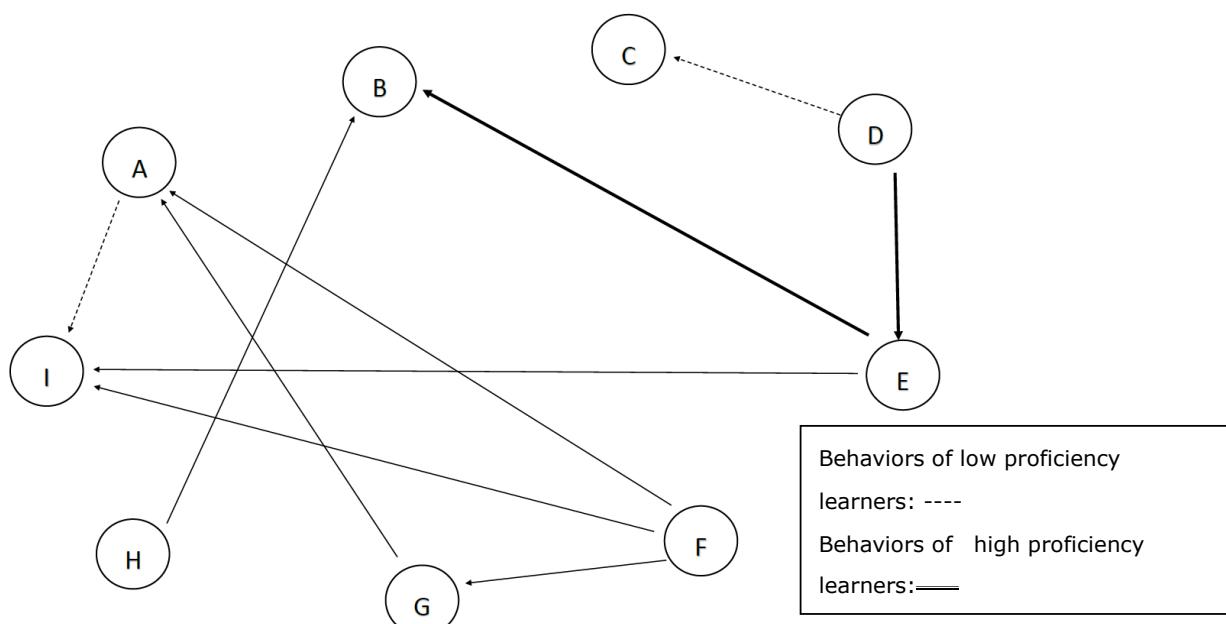


Figure 10. the behavior transition diagram of difference between low and high proficiency learners.

2. What are the student's attitudes towards using MEILA to learn English idioms? Most of the students considered MEILA as an interesting and useful learning application. More specifically, high proficiency learners reported that they were highly inspired to use MEILA because it not only improved their motivation for learning English idioms but also enhanced their listening ability. Moreover, they were impressed with multiple functions of MEILA, especially its appealing and vivid animations. However, the big files required for the animations and videos in MEILA occasionally took some time for loading when students didn't own good quality of smartphones or didn't have high-speed Internet. As a result, some students complained that "Waiting for loading is a little bit annoying since I had to wait when I used wi-fi." A student from the low proficiency level said that "I couldn't understand the animations since the animations didn't provide me with the Chinese subtitle." To sum up, most of the students appreciated the novel way and new experiences of using mobile technology for idiom learning and looked forward to using MEILA after the researchers upgrade its system in the future.

Conclusion

To high proficiency learners, MEILA provided interesting learning styles with rich cultural content which increased their motivation for MALL (Bachore, 2015). According to the analysis of the log data, high proficiency learners began by watching the animations. Next they read the example sentences, watched the instructional videos, and then returned to the example sentences. These actions reinforced their understanding of the idioms since the visual materials enhanced their memory (Moreno & Mayer, 1999).

Low proficiency learners read the example sentences immediately after they logged-in to MEILA because they relied on text in their learning procedure. They preferred the listening function instead of watching animations since they could read the Chinese translation in the example sentence while they were listening. They couldn't acquire new idioms as quickly as those high proficiency learners since the animations didn't provide them Chinese subtitles.

Although the results proved that MEILA was an effective tool for students to improve their idiomatic understanding, the researchers determined that some system modifications in MEILA were needed to enhance the experience of low proficiency learners. Since animations are more challenging for them, the researchers will develop three versions for users who require Chinese subtitles in the animations. Therefore, it can increase motivation for the low proficiency learners. In the near future, users will be able to select an English version, Chinese version, or one with no subtitles.

To sum up, both high proficiency learners and low proficiency learners had positive attitudes about the experience of using MEILA. It created a ubiquitous learning environment for Taiwanese EFL learners and enhanced their idiomatic knowledge.

The current study not only developed useful suggestions for MEILA users to make good use of this application but also provides the instructors an example of monitoring the learning behaviors from individual learners concerning their learning procedure. The findings may stimulate more MALL researchers, English instructors, and app designers to design an innovative learning environment with mobile for Taiwanese learners.

References

- Asl, F. M. (2013). The impact of context on learning idioms in EFL classes. *TESOL Journal*, 37(1), 2.
- Bachore, M. M. (2015). Language learning through mobile technologies: an opportunity for language learners and teachers. *Journal of Education and Practice*, 6(31), 50-53.

- Ballance, O. J. (2012). Mobile language learning: more than just "the platform". *Language Learning & Technology*, 16(3), 21-23.
- Burston, J. (2015). Twenty years of MALL project implementation: A meta-analysis of learning outcomes. *ReCALL*, 27, pp 4-20 doi:10.1017/S0958344014000159
- De Caro, R., & Edith, E. (2009). The advantages and importance of learning and using idioms in English. *Cuadernos de Lingüística Hispánica*, (14).
- Foti, M. K., & Mendez, J. (2014). Mobile learning: how students use mobile devices to support learning. *Journal of Literacy and Technology*, 15(3), 58-78.
- Hamza, F. S. A., Eng, W. B., & Hassan, M. T. A. (2017). Acquisition of English Idioms by Adult L1 Arabic Speakers. *Journal of Applied Linguistics and Language Research*, 4(7), 122-131.
- Hsieh, J. S. C., Wu, W. C. V., Chen, Y. H., Yang, J. C., & Chien, K. H. (2016, September). Using mobile-based MEILA to enhance EFL learners' idiomatic competence. In The International Workshop on Technology-Enhanced Collaborative Learning (TECL 2016) In conjunction with CRIWG/CollabTech 2016 (Vol. 1, p. 42).
- Hsu, C. K. (2015). Learning motivation and adaptive video caption filtering for EFL learners using handheld devices. *ReCALL*, 27(1), 84-103.
- Irujo, S. (1986). A piece of cake:/earning and teaching idioms. *ELT journal*, 40(3), 236-242.
- Kukulska-Hulme, A. (2013). Mobile-Assisted Language Learning. *The encyclopedia of applied linguistics*.
- Lai, C. L., & Hwang, G. J. (2015). A spreadsheet-based visualized Mindtool for improving students' learning performance in identifying relationships between numerical variables. *Interactive Learning Environments*, 23(2), 230-249.
- Mäntylä, K. (2004). Idioms and language users: the effect of the characteristics of idioms on their recognition and interpretation by native and non-native speakers of English. *Jyväskylän yliopisto*.
- Moreno, R., & Mayer, R. E. (1999). Cognitive principles of multimedia learning: The role of modality and contiguity. *Journal of Educational Psychology*, 91(2), 358.
- Strässler, J. (1982). *Idioms in English: A pragmatic analysis* (Vol. 183). Gunter Narr Verlag.

Hongyan Liu

Beijing Technology and Business University, Beijing, China

liuhongyan@btbu.edu.cn

Disfluency in Chinese English Learners' multimodal interpreting corpus

Bio data



LIU Hongyan is a professor in Linguistics, Dean of the School of Foreign Languages and Head of the school academic committee at Beijing Technology and Business University. She is a committee member of Computer-Assisted Language Learning Association (China CALL). Her main research area is interpreting study, corpus linguistics and neurolinguistics. She has been working on the compilation of the Chinese English Learners' Interpreting Corpus (since 2007) and Alzheimer's patients' Situated Discourse Corpus (since 2002).

Abstract

Few studies on interpreting fluency have been conducted based on a multimodal interpreting learners' corpus. This paper, based on Chinese Learners' Interpreting Corpus (CLIC for short) compiled at Beijing Technology and Business University, explores the necessity of multimodal annotation for disfluency. By means of a multimodal annotation software ELAN, a 8-tier multimodal annotation framework involving linguistic, paralinguistic, kinesic and extralinguistic information is designed with the aim of capturing the whole process of disfluency. Research findings reveal the frequency and percentage of occurrence of 10 disfluency parameters, among which 1 linguistic phenomenon (repetition), 4 paralinguistic (pause, filler, self-repair and drawling) and 2 groups of kinesic phenomena (body language and facial expressions) are statistically significant in leading to a relatively lower interpreting quality caused by disfluency output of interpreting learners.

Conference paper

Introduction

There is no doubt that the study of interpreting has exerted a positive influence on interpreting teaching and the training of interpreters. Fluency, as a critical criterion for interpreting output assessment, is an important goal for interpreting learners to achieve.

The positive role of disfluency in spontaneous speech cannot be denied. However, it impairs speech fluency when they exceed acceptable limits. Researches on disfluencies have been done mostly based on natural conversations and professional interpreters' interpreting production. Few studies have been done on interpreting learners' disfluency prevalence based on annotation results of an interpreting learners' corpus.

Since the Jeffersonian Transcription System was born in 1970s, it has been widely used in orthographic transcriptions over the last 40 years. Despite previous research, there is a lack of multimodal interpreting corpora and interpreting learner corpora as well as a widely accepted convention for transcribing and annotating interpreting data. A framework of

multimodal annotation is designed for Chinese Learners' Interpreting Corpus (CLIC for short) which is compiled at Beijing Technology and Business University. An empirical study is carried out to describe disfluency encountered by interpreting learners based on multimodal tagging, which can better preserve the audio and visual information of the interpreting process.

Although categorized as disfluencies (Clark & Wasow, 1998; Shriberg, 1999; Engelhardt et al., 2010; MacGregor et al., 2009; Corley & Stewart, 2008), pause, fillers and repetition may help smooth speech, facilitate understanding and serve different communicative functions (Hieke, 1981; Tissi, 2000; Brennan & Schober, 2001). However, evidence also shows that disfluencies can affect language comprehension (MacGregor, et al., 2009; Arnold & Tanenhaus, 2011; Xu, 2010). Disfluency in learners' interpreting practice can be defined in the second language production as not having the capability to generate fluent discourses in the way native speakers do. Previous studies have also pointed out that fluency is one of the most important factors influencing listeners' subjective judgment of an interpreter's performance (Rennert, 2010). Interpreting learners, as would-be interpreters, are not professionals—hence characterized by inaccurate grammar, inappropriate expressions as well as disfluencies in their output.

Major interpreting corpora

The compilation of interpreting corpora involves corpus design, data collection, transcription, tagging and concordance tool development. The recording and transcription of unscripted speech events is highly labour intensive in comparison to the work involved in collecting quantities of written text for analysis (Thompson, 2005, p.254). As a result, only approximately 20 interpreting corpora based on various languages have been compiled internationally mostly collected from international conferences with a focus on professional interpreters' interpreting performance. The table below gives an overview of major interpreting corpora in the world.

Table 1. An overview of major interpreting corpora

Corpus	Research Team	Corpus category and Corpus Source	Language and Corpus Size
EPIC	Russo et al. (2012)	collected from the European Parliament interpreting	Italian, English, Spanish; over 170,000 tokens
CIAIR	Tohyama et al. (2004)	professional interpreters' recordings collected from laboratory	English, Japanese; about 1 million tokens
DIRSI-C	Bendazzoli (2012)	simultaneous interpreting collected from 3 international medical conferences	English, Italian; about 136,000 tokens
FOOTIE	Sandrelli (2012)	simultaneous interpreting collected from 2008 European Football Championship	English, Italian, French and Spanish; corpus size unknown.
CoSi/K6	House et al. (2012)	collected from 3 conferences against genetically modified food	Brazilian Portuguese, German; About 36,000 tokens
ComInDat	Angermeyer et al. (2012)	combining 3 community interpreting corpora (DiK, IiSCC, SimDik)	English, German, Haitian, Portuguese, Polish, Spanish, Turkish and Russian; corpus size unknown.
DiK/K2	Bührig et al. (2012)	doctor-patient conversations conversations in German hospitals	German, Portuguese, Spanish and Turkish; 170,000 tokens
IiSCC	Angermeyer (2006)	collected from the New York court trials	Haitian, Polish, Spanish, and Russian; 40 interpreting texts
TIC	Cencini and Aston (2002)	collected from the television programmes	English; over 40,000 tokens
FPC	Straniero Sergio (2012)	simultaneous interpreting collected from the Formula One live programme	Italian, English; 340 interpreting texts
CECIC	Shanghai Jiaotong University Hu Kaibao, Tao Qing (not finished)	collected from Press conferences of the State Council of PRC and the Government Work Report	Chinese and English; over 540,000 tokens
CLIC	Beijing Technology and Business University Liu Hongyan (2007-2016)	collected in multimedia, multi-environment and multimodal interpreting labs; Chinese English learners' simultaneous and consecutive interpreting practice, sight interpreting, and interpreting tests.	Chinese and English; audio data: 60 hours video data: 20 hours over 1 million tokens
PACCEL	Beijing Foreign Studies University Wen Qiufang, Wang Jinquan (2009)	interpreting and translating practice, oral English tests; collected from national tests for English majors from 18 universities from 2003 to 2007	Chinese and English; interpreting data is only a part of the corpus. (overall size: over 2.1 million tokens)
CILC	Beijing Foreign Studies University Zhang Wei (not finished)	mainly collected from English tests	Chinese and English; over 1 million tokens

Setton (2011) believes prosodic, paralinguistic and extra-linguistic features should be inserted if needed for the research purpose. Based on an overview of all interpreting corpora compiled internationally (Zhang Wei, 2012; Zou Bing & Wang Binhu, 2014), there is not only a lack of interpreting learner corpora in general, but a lack of an accepted convention for transcribing and annotating interpreting data. Although emphasis has been placed on paralinguistic information in some interpreting corpora, the tagging of such information in these corpora is neither consistent nor complete.

The present study aims to answer the following questions:

1. What tiers of tagging should be involved in the multimodal annotation framework for the learners' interpreting corpus?
2. What disfluency features are revealed and what disfluency features are significant in influencing interpreters' interpreting quality according to multimodal annotation results?

CLIC Corpus

Phonetic information, paralinguistic information, data on background noise and visual information (e.g. facial expressions, gestures, spectator profiles and the interpreting setting) all play an indispensable role in the interpreting study. Multimodality has been defined by Kress & van Leeuwen as the "use of several semiotic modes in the design of a semiotic product or event, together with the particular way in which these modes are combined" (2001, p.20). Hauck and Youngs (2008, p.91) highlight that new media offers us the ability to draw on a number of different modes in the making of texts, and that we must take into account the fact that much of communication is now mediated by the computer. With a multimodal annotation design, the data for interpreting learners involved in this study is collected in Simultaneous Interpreting (SI) and Computer-Assisted Translation Learning and Research (SI & CAT) Labs (see Table 2) designed by the author and built by the Beijing Technology and Business University.

Table 2. An overview of the CLIC

Corpus name	Research team and team leader	Corpus category and mode	Languages	Corpus size	Focus of tagging
CLIC	Beijing Technology And Business University; Liu Hongyan (2007-2018)	Chinese English learners' simultaneous and consecutive interpreting practice, sight interpreting, and interpreting tests collected in multimedia, multi-environment and multimodal SI & CAT Labs	Chinese and English	Audio data: 60 hours Video data: 20 hours Approx. 1 million tokens	ELAN-based multimodal annotation, including detailed annotation of timeline, interpreting sound wave, speaker's original speech, learners' interpreting, linguistic information, paralinguistic information, kinesic information, extra-linguistic information

Establishing a multimodal annotation framework

With reference to the information classification involved in interpreting corpora as defined by Roach et al. (1998), Poyatos (2002), Monti et al. (2005), Zhang Wei (2009), and Zou Bing & Wang Binhu (2014), parameters involved in the multimodal annotation framework in the present study are divided into four types: linguistic information, paralinguistic information, kinesic information and extra-linguistic information.

Table 3. The CLIC multi-tier annotation framework for Disfluency

Tiers multimodal tagging	Annotation parameters		Annotation codes
Timeline Tier	Timeline Viewer		TIMELINE
Interpreting Sound Wave Tier	Sound Wave File		SOUND WAVE
Speaker's Origin Speech Tier	Speaker's Original Speech		SPEECH
Learner's Interpreting Tier	Learner's Interpreting		INTER TEXT
Paralinguistic Information Tier	Repetition		<RPT+>...<+RPT>
	False Starts		<FST+>...<+FST>
	Volume (Low)		<VML+>...<+VML>
	Volume (High)		<VMH+>...<+VMH>
	Tempo (Slow)		<TPS+>...<+TPS>
	Tempo (Quick)		<TPQ+>...<+TPQ>
	Pause (Short)		<PSS>
	Pause (Long)		<PSL>
	Drawling		<DRL+>...<+DRL>
Kinesic Information Tier	Facial Expressions	Filler	
		<FLR>	
		Self-repair	
		<SRP+>...<+SRP>	
		Excitement	
		<EXE>	
		Sorrow	
		<ESR>	
		Uncertainty	
	Body Language	<EXU>	
		Astonishment	
		<EXA>	
		Disgust	
		<EDI>	
		Depression	
		<EDE>	
		Satisfied	
		<ESA>	
Extra-linguistic Information Tier	Background Information	Dissatisfied	
		<EDS>	
		Others	
		Head Movements	Excitement
			<EXE>
		Eye Movements	Sorrow
			<ESR>
	Source Interpreting Material Information	Uncertainty	
		<EXU>	
		Astonishment	
	Background Information for Speakers	<EXA>	
		Disgust	
		<EDI>	
		Depression	

		Accent	<SAC>
Background Information for Interpreting Learners	Nationality	<LNA>	
	Gender	<LGD>	
	Age	<LAG>	
	Native Language	<LNL>	
	Type of Interpreting	<TOI>	
	Years of Formal English Education	<YEE>	
	Years of Interpretation Training	<YIT>	

The CLIC framework of multimodal annotation designed for disfluency aims at presenting the classification of multimodal tagging in detail. What follows are screenshots of an interpreting learner's facial expressions (Figure 1) and an annotation excerpt generated by the software program ELAN (Figure 2).



Figure 1. Learner's facial expressions in interpreting

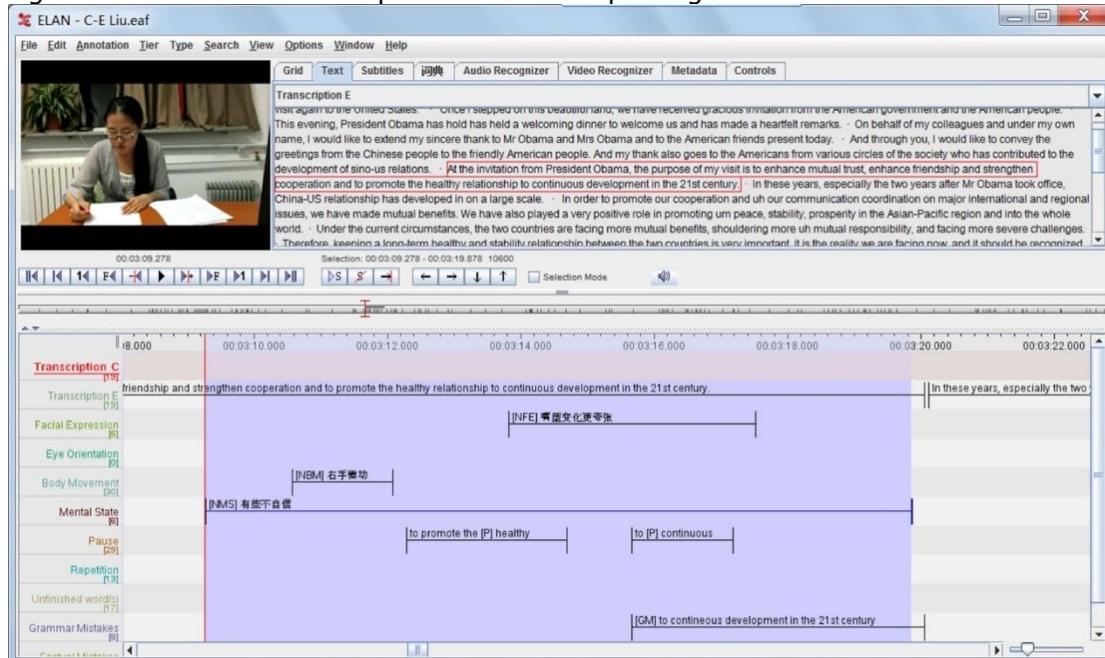


Figure 2. A multimodal annotation excerpt generated by ELAN

In sum, the multimodal annotation framework aids teachers and researchers in retrieving information involved in the English learners' interpreting process, thus exploring relevant

interpreting theories and strategies to promote the coordinated development of studies on interpreting teaching and training.

Applying the multimodal annotation framework to an empirical study

By applying a multimodal annotation framework to the tagging of interpreting learners' disfluency, the process of interpreting for English learners can be optimally revealed.

Participants

Sixty interpreting learners (46 female and 14 male learners) participated in this study. All participants were Junior English majors from the School of Foreign Languages, Beijing Technology and Business University, ranging in age from 20 to 23 years old. Having received 16 years of formal English education (with 3 and a half years of English learning as English majors), all participants have finished one-and-a-half semester interpreting course (a required course for English majors). Learners were from two parallel classes, with an attendance rate of above 90%.

A ceremonial consecutive interpreting task was selected as the assigned task. The source material was an opening remark delivered by a Chinese government official for a reception held for distinguished foreign guests. When selecting the material, text type, topic familiarity, input rate (the source language speaker's delivery pace), duration, difficulty level (the degree of technicality of the speech), information density, and style of speech (formal or casual) were taken into consideration to match the learners' English proficiency level. The duration of the source language speaker's speech was 2 minutes and 23 seconds. The consecutive interpreting process was audio and video recorded in its entirety using platform software and high-definition cameras shot from various angles in the SI & CAT Labs.

Results Analysis

The overall time duration for all 60 interpreting learners' consecutive interpreting video recordings was 170 minutes and 50 seconds, with an average individual interpreting duration of 2 minutes and 50 seconds. Of the 60 students, the shortest time duration was 1 minute and 33 seconds; the longest, 4 minutes and 54 seconds.

Both Adobe Audition and ELAN (EUDICO Linguistic Annotator) was used in the digitization process of interpreting learners' data in the multimodal archive of the CLIC corpus (Figure 3 & Figure 4).

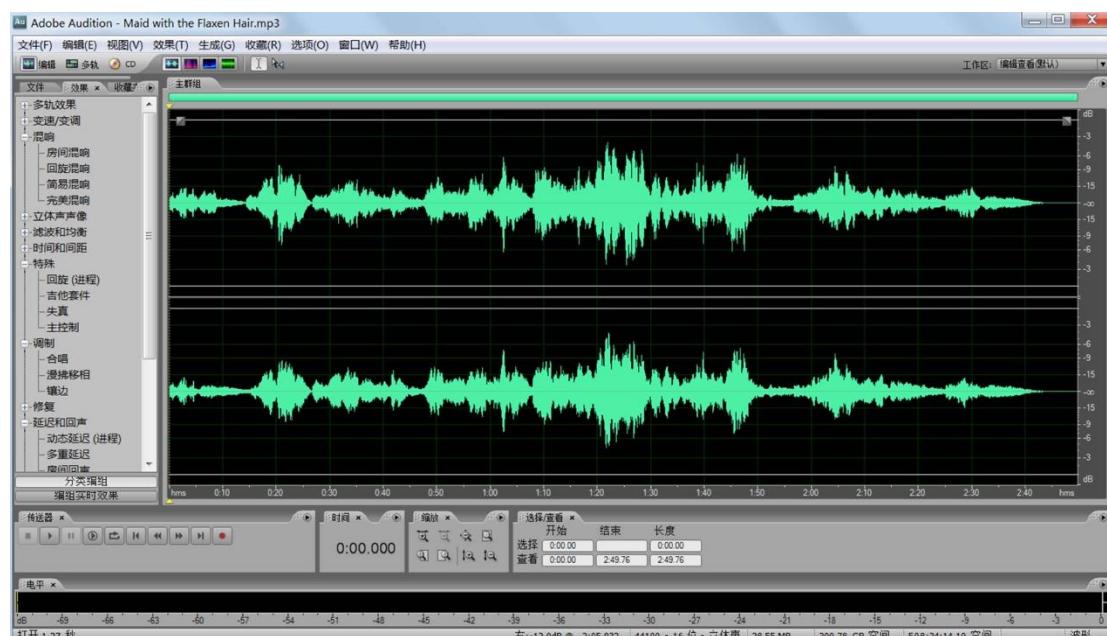


Figure 3. Adobe Audition software interface

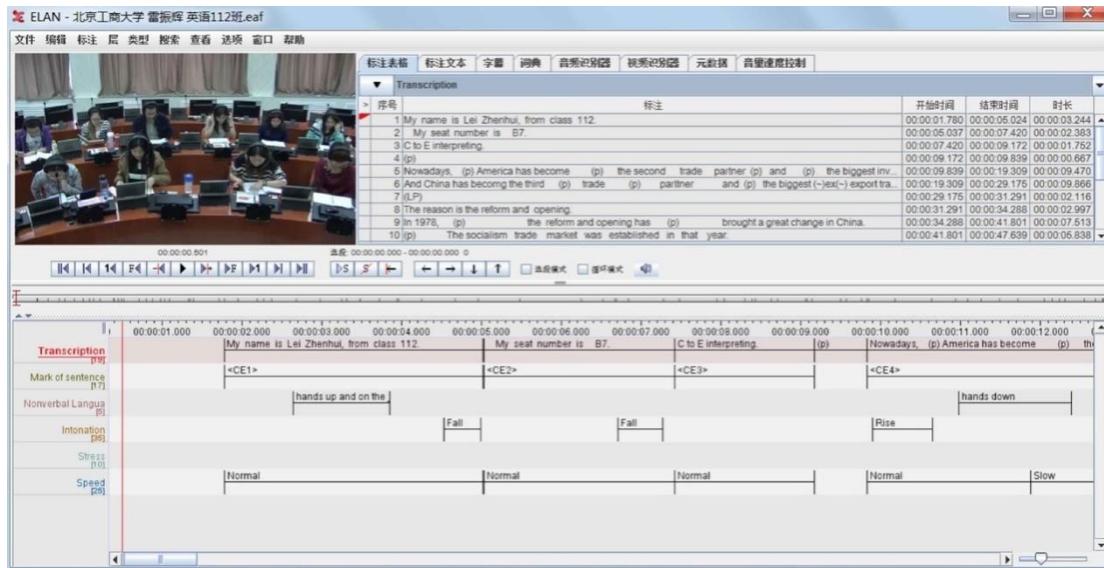


Figure 4. ELAN software interface

According to the multimodal annotation framework, the number of multimodal parameter annotations for disfluency amounted to 3,835, among which pause, filler and body language ranked among the top 3 parameters, comprising 25.35%, 18.96% and 18.44% of the total number of occurrences, respectively (see Table 4).

Table 4. An overview of annotation results

Multimodal information	Number of occurrences	Percentage
Pause	972	25.35%
Filler	727	18.96%
Body Language	707	18.44%
Repetition	458	11.94%
Tempo	233	6.08%
Self-repair	229	5.97%
Drawling	207	5.40%
Facial Expressions	111	2.89%
Volume	106	2.76%
False Starts	85	2.22%
Total Volume	3835	100%

Annotation results show that pause and filler (paralinguistic information), body language (kinesic information) and repetition (linguistic information) ranked top 4 among all disfluency annotation parameters. While Repetitions and pauses, as two types of the most common types of disfluency (Garnham, 1985), ranked among the top in the annotation results for both linguistic and paralinguistic information. As fluency has been confirmed by interpreters and conference participants as an important determinant of quality in interpreting (Bühler, 1986; Kurz, 1993), the prevalence of repetitions, fillers and pauses in the study data indicates a proficiency gap between interpreting learners and professional interpreters. Efforts should thus be made to heighten trainers' and interpreting learners' awareness of fluency in the training process.

Repetition

As a marked characteristic of the learners' practice, repetition occurs throughout the interpreting process at a relatively high frequency, occurring on average 7.63 times for each learner during a roughly 3-minute interpreting task. Repetition may indicate learners' difficulty of information processing during consecutive interpreting. In this situation, the interpreter may repeat what he or she has said, in order to wait for the subsequent

information. (Gu Yu, 2001) Annotation results show that interpreting learners' repetition is characterized by accompanying pauses and self repair, which can be regarded as an interpreting strategy to gain more time for thinking and processing.

Pause

Pauses, long and short, occurred throughout the interpreting process for all participants, with every learner pausing 16.2 times on average during a less than 3-minute interpreting task, the highest occurrence frequency per participant among all linguistic, paralinguistic and kinesic information annotations. Pause, filler and body language ranked the three most frequently annotated parameters among all linguistic, paralinguistic and kinesic phenomena, occurring 972, 727 and 707 times, and can be regarded as tags associated with interpreting learners.

Body Language

According to multimodal annotation, body language accompanying disfluency was annotated 707 times, including gestures as well as head, eye, and other body movements. Figures 5-1 to 5-6 are examples of various body movements.



Figure 5-1. Pen spinning



Figure 5-2. Looking up



Figure 5-3. Tugging at the clothes



Figure 5-4. Leaning against the forehead



Figure 5-5. One hand on the earphone, the other hand covering the mouth
Figure 5-6. Curling the lip

Figure 5. Interpreting learners' body movements

Body movements induced by emotional responses, colloquially referred to as body language, play a key role in the non-verbal communication that is believed to represent a substantial part of all human communication. From the body language occurrences, we see that, when encountering difficulties in the interpreting task, interpreting learners experience novice anxiety, leading to disfluency, manifesting signs of nervousness.

Effects on learners' interpreting quality

In order to examine what disfluency parameters have a greater effect upon learners' quality of interpreting, the performance of 60 interpreting learners were scored according to assessment criteria proposed by Kurz (2001) and the standard rubrics used by professional interpreting trainers. Interpreting tasks were scored by 3 professional interpreters according to assessment criteria including fluency, accuracy, completeness, logic, grammar and pronunciation. 17 dependent variables (reduced or mispronounced words, confused and misused words, ungrammatical structures, unfinished sentences, repetition, false starts, pragmatically inappropriate expressions, volume, tempo, pause, drawling, filler, accent, self-repair, background noise, facial expressions and body language) relevant to interpreting quality were annotated and the descriptive statistic is provided in Table 5 & 6.

Table 5. Descriptive statistics for 17 dependent variables

	Mean	Std. Deviation	N
Score	52.630000	15.6545364	60
Reduced or Mispronounced Words	2.10	1.434	60
Confused and Misused Words	5.08	2.842	60
Ungrammatical Structures	3.30	2.149	60
Unfinished Sentences	2.52	1.996	60
Repetition	7.63	5.339	60
False Starts	1.42	1.197	60
Pragmatically Inappropriate Expressions	1.37	.991	60
Volume	1.77	1.522	60
Tempo	3.72	3.152	60
Pause	16.20	9.630	60
Drawling	3.45	2.764	60
Filler	12.12	10.554	60
Accent	1.08	1.306	60
Self-repair	3.82	2.288	60
Background Noise	1.88	2.906	60
Facial Expressions	1.85	1.260	60
Body Language	11.78	10.753	60

Table 6. Coefficients^a

Model	Unstandardized Coefficients		Beta	T	Sig.
	B	Std. Error			
(Constant)	91.227	1.745		52.286	.000
Reduced Mispronounced Words	-.587	.381	-.054	-1.541	.131
Confused and Misused Words	-.345	.277	-.063	-1.247	.219
Ungrammatical Structure	-.830	.309	-.114	-2.689	.010
Unfinished Sentences	-.764	.274	-.097	-2.792	.008
Repetition	-.375	.096	-.128	-3.900	.000
False Starts	-.803	.397	-.061	-2.021	.050
Pragmatically Inappropriate Expressions	.564	.597	.036	.945	.350
Volume	-.588	.370	-.057	-1.588	.120
Tempo	.178	.178	.036	.999	.323
Pause	-.315	.062	-.194	-5.088	.000
Drawling	-.577	.190	-.102	-3.032	.004
Filler	-.644	.051	-.435	-12.561	.000
Accent	1.944	.432	.162	4.498	.000
Self-repair	-.986	.218	-.144	-4.514	.000
Background Noise	-.757	.190	-.140	-3.972	.000
Facial Expressions	-1.517	.441	-.122	-3.440	.001
Body Language	-.556	.054	-.382	-10.248	.000

a. Dependent Variable: Score

Among 17 constant predictors, 11 items are shown to be statistically significant, while 6 parameters fail to achieve significance (Table 6). The significance values of the 10 disfluency parameters, ranging from highly significant to significant and not significant are given in Table 7.

Table 7. Significance values of 10 disfluency parameters on interpreting quality

Repetition	0.000	Highly significant
Pause	0.000	Highly significant
Filler	0.000	Highly significant
Self-repair	0.000	Highly significant
Body Language	0.000	Highly significant
Facial Expressions	0.001	Highly significant
Drawling	0.004	Highly significant
False Starts	0.050	Not significant
Volume	0.120	Not significant
Tempo	0.323	Not significant

The results in Table 7 show 7 disfluency parameters: repetition, pause, filler, self-repair, body language, facial expressions and drawling are highly significant and have a statistically significant influence on the score for interpreting learners. This finding corroborates the link

between linguistic, paralinguistic and kinesic parameters and interpreting quality, and falls in line with the assumption that a higher occurrence frequency of these 7 parameters will have a negative impact on learners' interpreting quality and fluency. In contrast with the above-mentioned 7 parameters, false starts, volume and tempo failed to achieve statistical significance in predicting interpreting quality for learners. Annotation results also corroborate Mead's assertion, showing the presence of non-linguistic information (e.g., pauses, fillers, body language and facial expressions) has a negative effect on interpreting quality.

Acknowledgements

The multimodal corpus annotation work was supported by [Beijing Philosophy and Social Science Fund] under Grant [Number: 14ZHB007] and the [Collaborative Innovation Centre for State-owned Assets Administration] under Grant [Number: GZ20131301].]

References

- Arnold, J. E., & Tanenhaus, M. K. (2011). Disfluency effects in comprehension: how new information can become accessible. In E. Gibson and N. Perlmutter (Eds.) *Processing & Acquisition of Reference* (pp. 197-217). Cambridge: MIT Press.
- Brennan, S. E., & Schober, M. F. (2001). How listeners compensate for disfluencies in spontaneous speech. *Journal of Memory & Language*, 44(2), 274-296.
- Bühler, H. (1986). Linguistic (semantic) and extra-linguistic (pragmatic) criteria for the evaluation of conference interpretation and interpreters. *Astrophysical Journal*, 647(1), 692-708.
- Clark, H. H., & Wasow, T. (1998). Repeating words in spontaneous speech. *Cognitive Psychology*, 37, 201-242.
- Corley, M., & Stewart, O. W. (2008). Hesitation disfluencies in spontaneous speech: the meaning of um. *Language & Linguistics Compass*, 2(4), 589-602.
- Engelhardt, P. E., Corley, M., Nigg, J. T., & Ferreira, F. (2010). The role of inhibition in the production of disfluencies. *Memory & Cognition*, 38(5), 617-628.
- Garnham, A. (1985). *Psycholinguistics : central topics*. Methuen.
- Gu, Y. (2012). A Chess Master Model for Classroom Teaching and Teacher /Researcher Development. *Chinese Journal of Applied Linguistics*, 35(1), 5-23.
- Hai-Ming, X. U. (2010). Pauses in conference consecutive interpreting from English into Chinese:an empirical study. *Foreign Languages Research*, (119)1: 64-71.
- Hauck, M. & Youngs, B. L. (2008). Telecollaboration in multimodal environments: the impact on task design and learner interaction. *Computer Assisted Language Learning*, 21(2): 87-124.
- Hieke, A. E. (1981). A content-processing view of hesitation phenomena. *Language & Speech*, 24(2), 147-160.
- Kress, G. R., & van Leeuwen, T. (2001). Multimodal discourse: the modes and media of contemporary communication. *Journal of Sociolinguistics*, 54 (2004), 318-320.
- Kurz, I. (1993). Conference interpretation: Expectations of different user groups. *The Interpreters' Newsletter*, 5, 13-21.

Kurz, I. (2001). InterprÉtation - conference interpreting: quality in the ears of the user: quality in the ears of the user. *Meta*,2.

Macgregor, L. J., Corley, M., & Donaldson, D. I. (2009). Not all disfluencies are equal: the effects of disfluent repetitions on language comprehension. *Brain & Language*,111(1), 36-45.

Monti, C. et al. (2005). Studying directionality in simultaneous interpreting through an electronic corpus: EPIC (European Parliament Interpreting Corpus). *Meta*,50(4), 114-129.Niemants, N. S. A. (2012). The transcription of interpreting data. *Interpreting*, 14(2).

Poyatos, F. (2002). Nonverbal Communication across Disciplines. *Business Communication Quarterly*, 66 (December).

Rennert, S. (2010). The impact of fluency on the subjective assessment of interpreting quality. *EutEdizioniUniversità Di Trieste*.

Roach, P. et al. (1998). Transcription of prosodic and paralinguistic feature of emotional speech. *Journal of the International Phonetic Association* 28(1-2),83-94.

Setton, Robin. (2011). Corpus-based interpretation studies (CIS): overview and prospects. In Kruger, Alet, Kim Wallmach and Jeremy Munday (eds.) *Corpus-based Translation Studies: Research and Applications*. London and New York: Continuum International.

Shriberg, E. E.(1999). Phonetic consequences of speech disfluency. *Proceedings of International Congress of Phonetic Science (ICPhS)*, 1, 619-622. San Francisco.

Thompson, P. (2005). Spoken language corpora. *Developing Linguistic Corpora: a Guide to Good Practice*, 254.

Tissi, B. (2000). Silent pauses and disfluencies in simultaneous interpretation: a descriptive analysis. *The Interpreters Newsletter*, 10, 103-127.

Zhang, W. (2009). Interpreting corpus: some theoretical and practical issues. *Chinese Translators Journal*, 3, 54-59.

Zhang, W. (2012). Interpreting corpus and relevant researches in the last decade: present conditions and oncoming trends. *Journal of Zhejiang University (Humanities and Social Sciences)*, 2, 193-205.

Zou, B. & Wang B. (2014).Transcription and annotation of paralinguistic information in interpreting corpora: the status quo, problems and solutions. *Shandong Foreign Language Teaching Journal*, 4, 17-23.

Zhihong Lu

Beijing University of Posts and Telecommunications, Beijing, China

luzhihong@bupt.edu.cn

Classroom practice of online controlled writing in EFL learners' oral production by using an AWE Tool

Bio data



Zhihong Lu is Professor of Foreign Languages Department at Beijing University of Posts and Telecommunications where she has been involved in online teaching since 2000. She is author of over 40 research publications and member of the National Foreign Languages Teaching Advisory Board under the Ministry of Education in China. Her research interests include EFL teaching, CALL, and sociolinguistics.

Abstract

Recent research has shown that co-construction computer-based communication and self-repair are predictive of the English as a foreign/second language (EFL/ESL) learners' output abilities in the target language (Levelt, 1983; Luk, 2010; Mojavezi, 2014). The objective of this study is to investigate the potentially facilitative impact of the online controlled writing task on the EFL learners' subsequent speaking tasks in a computer-based classroom. The study was carried out using two parallel regular classes of an English audio-video speaking course (EAVSC) for non-English major college students, one being fully computerized utilizing the *Pigai* system (www.pigai.org), a web-based automated writing evaluation (AWE) tool, the other being completely similar but not using the *Pigai* system. Statistical analyses of correlated data indicate that two conclusions can be drawn as follows: (1) the ten-minute controlled writing task online is facilitative to the students' follow-up speaking task, e.g. a one-minute recording of a personal statement; (2) the *Pigai* system, as applied in this study can play an important role in assisting students' abilities to write effectively in the target language through raising cognitive awareness of respective language holes during the process of construction/reconstruction and statement/restatement and through integrating task-based writing and speaking into a series of speaking activities.

Conference paper

Introduction

Today, instructors do their utmost to create a classroom atmosphere that facilitates students' involvement in different varieties of activities in the target language. The government document *Outline of China's Medium to Long Term National Education Reform and Development* (2010-2020) released in 2010, placed emphasis on the application of modern technologies in education, the enhancement of instructors' skills of technology application and the modification of teaching methods. It underlined the importance of stimulating EFL learners' initiatives, and problem-solving capabilities as well as speaking/listening competence through the implementation of educational

technologies. In order to meet these demands, communicative language teaching (CLT) and task-based language teaching (TBLT) have been progressively applied in developing EFL learners' productive proficiency in classroom instruction in Chinese higher educational institutions. Research has shown that in the process of communication, the comprehensible output is conducive for learners to recognize their language holes and facilitative to their subsequent language learning.

Pedagogical practice

Previous studies have shown that AWE tools have great potential for EFL learners to improve their writing. The aim of this study is to investigate the correlation between Chinese college EFL learners' performance of writing through the *Pigai* system and that of the follow-up speaking activity, i.e. the personal statement in an English audio-video speaking course (EAVSC).

The pedagogical practice has been conducted repeatedly in the author's EAVSC classes since 2014 with different groups of second-year students (at a similar English level) in a digital lab. In order to improve speaking skills, students are usually asked to get involved in the group- and pair-discussions and subsequent ten-minute online controlled writing activities. The process of writing online enables students to rethink and reconstruct their ideas. Coupled with the machine-based feedback, the *Pigai* system, students can eliminate common mistakes and produce superior output. Once students have completed the writing activity, they have to produce a one-minute speech on the same topic, a process of crystallization of their ideas (Swain, 2008). As Smagorinsky (1998) said, "The process of rendering thinking into speech is not simply a matter of memory retrieval, but a process through which thinking reaches a new level of articulation"(pp. 172-173).

To measure if it is feasible, pre- and post-tests along with follow-up surveys had been carried out in several teaching sessions since 2014. In particular, a ten-week experiment had been repeated from September 2014 to January 2015, and October, 2015 to January, 2016 between the control and the experimental class at the author's EAVSC class. The teaching design includes: 1) group discussion and pair work based on synchronous computer-mediated interacted speaking activities; 2) a ten-minute writing task on the *Pigai* system (exclusive to the experimental class) with the same topic in speaking activities; 3) a one-minute personal narrative task of the same topic. Students took a test of the same format test items of content-based listening and speaking tasks at the beginning and the end of the semester. Both the control and the experimental class have the same teaching plan and the same instrutor. Students have access to Internet, synchronous computer-mediated communication, random grouping and speech recording. All students' written texts and their oral performances were collected and recorded for analyses.

Discussion

In the process of synchronous computer-mediated communication, students would monitor their output and reflect on their language holes. The ten-minute writing task online can be considered as the process of reconstruction and restatement of each student's opinions and his or her supporting arguments. The classroom implementation of the *Pigai* system greatly raised students' interest in recalling what they discussed in the group- and pair-activities. And more importantly, they improved their writing through a process supported by the machine-human interaction with immediate feedback on their output. Besides, the feedback from the questionnaire at the post-test revealed that above 83% of the participants in the experimental class thought the ten-minute controlled writing tasks were helpful to ease anxiety in their follow-up speaking tasks. 87.5% of the participants admitted to the effectiveness of prior writing task in the organization of the subsequent personal statement task. Regarding confidence, 91.67% of female participants and 83.3% of male participants considered prior writing conducive to increasing their degree of confidence in the speaking tasks.

Conclusions

The findings of this study show the impact of ten-minute controlled writing tasks on EFL learners' speaking skills in the EAVSC as follows: 1) Students, while involved in the group- and pair-discussions, noticed their respective linguistic holes. In the process of writing using the AWE tool, students reconstructed their output, making it more effective to improve their subsequent speaking tasks, and enhanced their cognitive awareness of oral language output as well. 2) A large number of students indicated that the ten-minute controlled writing tasks prior to their personal statements, were facilitative for strengthening their confidence in their oral expressions. 3) The modified writing versions based on the real-time feedback provided by the AWE tool helped students to eliminate some common mistakes and make their output more logical and better organized. 4) The study provides the pedagogical implications for EFL instructors to integrate learners' communicative language abilities into the process of classroom implementation of modern educational technologies in CALL environments, and furthermore, the teaching model in this study is duplicable and can be applied to other EFL teaching contexts.

References

- Levelt, W. J. (1983). Monitoring and self-repair in speech. *Cognition*, 14(1), 41-104.
- Luk, J. (2010). Talking to score: impression management in L2 oral assessment and the co-construction of a test discourse genre. *Language Assessment Quarterly*, 7(1), 25-53.
- Mojavezi, A., & Ahmadian, M. J. (2014). Working memory capacity and self-repair behavior in first and second language oral production. *Journal of Psycholinguistic Research*, 43(3), 289-297.
- Smagorinsky, P. (1998). Thinking and speech and protocol analysis. *Mind Culture & Activity*, 5(3), 157-177.
- Swain, M. & Yang, L. X.(interviewer) (2008). Output hypothesis: its history and its future. *Foreign Language Teaching and Research (bimonthly)*, 40(1), 45-50.

Beate Luo

Feng Chia University, Taichung, Taiwan

beate@fcu.edu.tw

CALLing un-CALLable data

Bio data



Beate Luo works as an associate professor at the Department of Foreign Languages and Literature of Feng Chia University in Taichung, Taiwan. Her research interests include CALL/MALL, vocabulary acquisition, and pronunciation training.

Abstract

For a study that investigates the influence of spacing repetitions on students' vocabulary retention over a period of four semesters, the learning platform Quizlet is used. This platform is very helpful for vocabulary learning as sets can be used in different modes thus suiting different learning styles. However, Quizlet provides only a very rudimentary grade-book that does not even allow to export the few data available. This paper describes the methodological challenges in retrieving data on students' learning activities from the platform and how they were overcome with a combination of self-reports and screenshots provided by the students and spot-checks on part of the teacher.

Conference paper

University students in Taiwan use computers and mobile devices on a daily basis, but not so often for language learning (Luo, 2016). However, online and mobile learning are becoming an essential tool for facilitating L2 learners' learning (Ma, 2017). Sharifi, Rostami AbuSaeedi, Jafarigohar and Zandi, (2017) reported an overall weighted average effect size for achievement of +.50 in a meta-analysis of the empirical literature on CALL for English. But Lai and Gu (2011) as well as Son (2007) noted that teachers need to encourage and support their students in order to facilitate the active use of technology out-of-class for language learning. Son (2007) and Kim, Rueckert, Kim, and Seo (2013) reported that once students experienced the usefulness of new technology for language learning and felt more comfortable using the technology, their willingness to engage in mobile and online learning also increased.

Considering learning techniques, one technique that can easily be incorporated into online learning is spacing repetitions. Together with practice testing it has been awarded the highest utility ratings due to ease of implementation and positive effects (Dunlosky, Rawson, Marsh, Nathan, and Willingham, 2013). As the retention interval depends on the gap between learning sessions, spacing learning over several months can further increase the retention interval (Carpenter, Pashler & Cepeda, 2009; Cepeda, Vul, Rohrer, Wixted & Pashler, 2008). While most research on spaced repetitions has been done over a timespan

of several weeks to several months, this research wants to investigate its influence on students' vocabulary learning and retention over a period of four semesters when using Quizlet for vocabulary learning. The aim of the study is to investigate students' perceptions of spacing repetitions and its sustainability in praxis.

Vocabulary learning has been integrated into the class as it has been identified as a weak point in students' learning. For one thing, students' workload is quite heavy with often more than 30 hours including required non-credit classes. Thus, they invest less study time into elective classes that are not related to their major field of studies, as is the case of foreign language classes offered to students from all departments. Although it may be argued that students may also study vocabulary using other means of studying or use Quizlet without reporting, when asking students about their focus when studying for exams, as the author is regularly doing, the vast majority of students indicate that they focus on the latest class content and mostly on grammar aspects. This implies that studying vocabulary is not a priority and that students focus on recently learned vocabulary that they believe is more likely to appear in midterm and final exams. Each academic year, only one to two students state that they also revise content from earlier courses.

On the other side, when asking students how they study vocabulary, the majority of our students will answer that they either write new vocabulary items down several times, or read the words out loud several times (Luo, submitted paper). However, none of these forms of rote learning techniques seem to be very effective for vocabulary acquisition over a long period of time and students often do poorly on vocabulary tests. In order to remedy this situation, the learning platform Quizlet (<https://quizlet.com>) was incorporated into the curriculum design of a Spanish course covering four semesters. Another reason for using the platform was to increase students' familiarity with online and mobile learning as well as to enable them to experience the usefulness of spacing repetitions. Quizlet is a platform that allows for the creation of study sets containing a term and a definition. While content of the sets can be anything that needs to be learned, in our classes it is used mostly for vocabulary learning and to a lesser extend to practice verb conjugations. The sets can be used in different modes such as flashcards, dictations, translations, or matching items. But in order to proof the effectiveness of spaced repetitions while using the platform, students' use of the study sets needs to be tracked. Only after realizing, students can make informed decisions on their learning behavior. However, data collection in Quizlet is far from ideal.

Many learning platforms provide teachers with detailed information on students' learning, e.g. Conjuguemos (<https://conjuguemos.com>) or Kahoot (<https://create.kahoot.it>). Quizlet, however, only offers a 'class progress' for each set where teachers can see who has used the sets in a given period of time, which study mode they have used and, only when hovering over the check mark that indicates that students have either started or finished the activity, when they have started or last finished this mode. However, even this information is very vague, e.g. two months ago. It does not provide any information about how often and, if they studied more than once, when they studied the set using the same mode. In addition, the little amount of data available cannot be exported as Excel files and has to be hand collected. The only other option is to enter each students' portfolio where a few more details are provided, but disappear over time. For recording students' data, it would be necessary to check students' records every day during the study period. Therefore, these data were dubbed 'un-CALLable' here and an important part of the study was the challenge to call these un-Callable data.

This paper reports on the methods used to obtain reliable self-reports from students – instead of hand-collecting data – and their effectiveness.

Methods

For this study, different vocabulary sets, that cover the content of the textbooks used in the courses had been created on the learning platform Quizlet beforehand. At the beginning of the first semester, all students in two Spanish 1 classes were taught about the possibilities

that online learning can provide and about the advantages of using different learning techniques, some of them provided by the platform. The students were acquainted to the learning platform and asked to try out the different modes in order to find out which ones would be most effective for them.

None of the students had ever learned Spanish before. Out of the 97 students in both classes, 65 students currently taking Spanish 2, volunteered to take part in this study, 31 in the experimental class and 34 in the control class. At the beginning of their first semester, students in the experimental class were introduced to the application of spaced repetitions in their vocabulary learning, i.e. practicing the sets not only once but spreading revisions over two days in the first week and then revising after one month and after two months, on the first day in class and on the following day as homework assignment. Students in the control class use the sets only on the first two days. While class time allotted for practicing the Quizlet sets is the same in both classes, students of the control class only practice the new sets during that time while students of the experimental class have to split up this time to practice not only the new sets but also the older ones, i.e. they dedicate less time to each set on a given day but revise the sets on more days. Thus, in class students in both groups dedicate the same amount of time for each set but one group in a block design while the other group uses a repeated learning design. At the end of the second, the third, and the fourth semester, students take a proficiency test for auditory and reading comprehension.

Every week, students practice one to three Quizlet sets in class. Students take screenshots of their records in Quizlet from their mobile phones once they finish studying and upload them to the school's learning management system iLearn2. In addition, they fill out self-reports to gather the necessary data. These self-reports are Excel files where students annotate the date when they used Quizlet, which mode(s) they used and how often they used each mode. Students of the experimental class are also asked to rate their familiarity with the vocabulary in their revisions after one and after two months using the statistics provided to them by Quizlet on how well they have completed the exercises. The Excel files are updated and uploaded to iLearn2 whenever students have used Quizlet.

Reliability of self-reports

Although students had received explicit instructions in class and also in form of handouts, at the beginning of the first semester, students often forgot to complete their homework assignments and uploading of their self-reports on the second day. The first few screenshots were also not reliable as students often just posted snips of their screenshots that did not show the time when the screenshots were taken. Therefore, at the beginning of the first semester, all screenshots and self-reports needed to be checked. However, as these were homework assignments, students are given scores on how accurate they follow the repeated studying regime and report results, regardless if they take part in the study or not as the aim is not only to gather data for the study but also to make students aware of the possibilities of spacing repetitions and its influence on learning outcomes.

It took about two months until most of the students had gotten into the habit of self-reporting and posting clear screenshots. This was also the time when students in the experimental group started to realize that they still remembered a large amount of the words they had learned two months earlier.

Now, in the second semester, when doing spot checks of students' study behavior in Quizlet and comparing them to students' self-reports, results correspond 100%. As students need to post screenshots, they report exactly what they have done in the Excel files. Thus, even when problems appear, as a breakdown of one students' result page on Quizlet as happened in March this year, we can assume that students report truthfully what they have done. Thus, at the end of the first semester, the Excel files of those students who volunteered in the study were downloaded and combined to one file where all necessary data of that semester can be assessed for further study. Files of the other students were only assessed

for their completion of the homework assignments as this was part of the grade they received in that semester.

Although results of the study are not yet available, observations so far do not only imply that students' spacing of repetitions became more reliable, students in the experimental group assess their vocabulary knowledge during revisions of sets studied 2 months earlier as relatively high (>89% in May 2018) and higher compared to the first semester (>78% in December 2017).

Conclusion

It shouldn't be an exceptionally huge problem for the learning platform Quizlet to provide teachers with more detailed information when, what, and how often students studied on their platform, as this information is provided in detail by other learning platforms. But although the data are made un-CALLable on Quizlet, with the help of the students taking part in the study, the necessary data have been and are still successfully collected.

References

Carpenter, S. K., Pashler, H., & Cepeda, N. J. (2009). Using tests to enhance 8th grade students' retention of U.S. history facts. *Applied Cognitive Psychology*, 23:760-771.
<http://doi.org/10.1002/acp.1507>

Cepeda, N. J., Vul, E., Rohrer, D., Wixted, J. T., & Pashler, H. (2008). Spacing effects in learning – A temporal ridgeline of optimal retention. *Psychological Studies*, 19(11):1095-1102. <http://doi.org/10.1111/j.1467-9280.2008.02209.x>

Dunlosky, J., Rawson, K., Marsh, E., Nathan, M.J., & Willingham, D. (2013). Improving students' learning with effective learning techniques: promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, 14:4-58.
<http://doi.org/10.1177/1529100612453266>

Kim, D., Rueckert, D., Kim D.-J. & Seo, D. (2013). Students' perceptions and experiences of mobile learning. *Language Learning and Technology*, 17, 52-73. Retrieved from <http://llt.msu.edu/issues/october2013/kimetal.pdf>

Lai, C. & Gu, M. (2011). Self-regulated out-of-class language learning with technology. *Computer Assisted Language Learning*, 24, 317-335.
<http://doi.org/10.1080/09588221.2011.568417>

Luo, B. (2016a). Students' perceptions of a web-based platform for practicing Spanish. In: Ho W.C. (ed.), *Foreign Language Education at Home and Abroad: Pedagogy in the Contexts of Language, Literature, and Translation*, Feng Chia University, Taichung, pp. 195-222

Ma, Q. (2017). A multi-case study of university students' language-learning experience mediated by mobile technologies: a socio-cultural perspective. *Computer Assisted Language Learning*, 30, 183-203. <http://doi.org/10.1080/09588221.2017.1301957>

Sharifi, M., Rostami AbuSaeedi, A., Jafarigohar, M., & Zandi, B. (2018). Retrospect and prospect of computer assisted English language learning: a meta-analysis of the empirical literature, *Computer Assisted Language Learning*, 31, 413-436,
<http://doi.org/10.1080/09588221.2017.1412325>

Son, J.-B., (2007). Learner experiences in web-based language learning. *Computer Assisted Language Learning*, 20, 21-36.
<http://doi.org/10.1080/09588220601118495>

Wulin Ma, Shen Kuang, Shanshan Liu & Xiaoli Su

Sichuan International Studies University, Chongqing, China

mawulin@foxmail.com - 307180815@qq.com - 1717568@qq.com - 403924351@qq.com

A study on college english instruction in a MOOC-based flipped classroom in China

Bio data



Wulin Ma is a professor in English at Sichuan International Studies University(SISU).His research interests includes CALL,TELL,Corpus linguistics and lexicography as well.He is currently pursuing his PHD in Lexicography at SISU.



Shen Kuang is a postgraduate student at Sichuan International Studies University. Her research interests includes CALL, MOOC and English language teaching.



Shanshan Liu is a lecturer at Sichuan International Studies University, where she has participated in several renovation programs of language teaching in relation to Massive Open Online Courses. Her research area includes MOOCs, learning through project and task based teaching, flipped classes and etc..



Xiaoli Su is a lecturer at the Department of College English Teaching at Sichuan International Studies University. She holds a Master's in English Linguistics and Applied Linguistics from Beijing Normal University. Her research areas include CALL, MALL, and critical thinking in English writing, and motivation of English learners.

Abstract

MOOC has developed very quickly across the globe and China is no exception. This paper explores a PTMF model (an integration of Project and Task in MOOC-based Flipped classroom), which we applied to College English instruction in a Chinese university. Using a mixed-method approach, we examined the effect of the PTMF model on student learning and achievement. Two classes were randomly chosen as experimental classes. Participants' English proficiency was tested before and after the 3-month experiment. Despite some challenges, we consider PTMF an effective instructional model to improve student language proficiency and learning ability in the MOOC era.

Conference paper

Introduction

Background of study

MOOC(Massive Open Online Course) has developed very quickly in China. In 2015, the MOE (Ministry of Education) of China issued a document to construct at least 3,000 MOOCs at state level over the following three years. There is no specific data for provincial-level MOOCs, but an estimated ten thousand MOOCs will be available online in China within this timeframe.

College English is a compulsory course for non-English major tertiary-level students in China. However, the majority of college students have little interest in this course, which leads to low engagement in learning English. Since millions of Chinese students are required to follow this course, so it is of great importance to construct a College English MOOC to meet these students' needs, foster active learning.

Previous studies by Orsini-Jones et al. (2015a, 2017) have reported on the opportunities of using a MOOC in English language teaching, focusing on learners' beliefs in MOOC-based blended learning, and teachers' beliefs toward online learning in general and MOOCs in particular. In this context, the research team has built a College English MOOC for college students in China by using Task-based Language Teaching approach via the platform called CQOOC (Chongqing Online Open Courses) which aims to improve students' language proficiency. The instructional material contains four units which are taken from the coursebook *New Standard College English: Real Communication, an Integrated Course - Book 1 (Second Edition)*, and each unit covers two reading passages.

Baralt et al. (2017) provide some suggestions for teachers on how to do task-based language teaching online, i.e., teachers should know that online teaching often involves doing many things all at the same time. The instructors constructed a College English MOOCs based on the same coursebook, including background information, difficult language points, structure of the passage, vocabulary exploring, translation, etc. Besides, Online forum on the platform for the students to discuss some interesting topics or put some problems they cannot solve are provided. The instructors have joined their discussion and helped the students solve the problems. Students are required to complete the tasks online to assess their learning. Norris (2016) states that "tasks offer a fundamental, though not exclusive, foundation for useful language assessment." Ellis (2017) distinguishes two dimensions of tasks: (1) input-based, i.e. tasks that do not require but do not prohibit production and (2) output-based, i.e. tasks that require speaking and/or writing to achieve the outcome. The College English MOOC mainly focuses on the input-based tasks.

In addition to the language proficiency, students' learning engagement and ability of using language in the real world also needed to be developed and improved. It is

necessary to organize some face-to-face class activities and output-based tasks to facilitate interaction by using the target language. Some researchers find that "flipped learning was successful in achieving the instructional goals of the class, ...the flipped classroom enhanced the participants' motivation, making them more active in using idioms in class" (Chen et al., 2016). Hamdan et al. (2013) put forth the F-L-I-P™ model, which refers to Flexible environment, Learning culture, Intentional content, and Professional educator. Zhou and Jiang (2014) propose a closed-loop flipped classroom model which contains an additional after-class stage and elaborates the detailed operations for all the stages. In investigating methods to foster active learning, Hsiu-Ting Hung (2015) integrates flip teaching into language classrooms using a WebQuest active learning strategy, and the study "has yielded generally positive results on the students' participation, satisfaction, and performance". Jeff Mehring (2016) advocates "English language teachers need research that supports the benefits of the flipped classroom model as well as how to implement the tools available in order to be successful". Hung (2017) developed the instructional design framework in a flipped classroom according to the F-L-I-P principles, which gives some specific learning support in the study. A few researchers have tried to combine MOOC/SPOC and flipped classroom into new English teaching models. For example, Liu (2016) combines MOOC, flipped classroom and ESP into a new model which was implemented for a whole term. Zhang et al. (2018: 37) find that "the SPOC-based flipped classroom of college English can serve as an effective learning model in teaching and learning practice."

Since the combination of MOOC and flipped classroom can not only provide the students with language proficiency, but also the opportunity of using target language in the real world, then how to flip the classroom becomes a main problem for the researchers. Some researchers find Project-based Language Learning (PBLL) plays an important role in language instruction, directed at improving students' general language skills. For example, Lou et al. (2012) propose a Blended Project-Based Learning Creative Instructional Design model which can effectively enhance students' creativity. Gibbes and Carson (2014) analyze learner reflections of project work through Activity Theory, and "the study confirms the importance of focusing on real learners and real stories". Then what is a project in language instruction? And what is PBLL? Beckett (2002:54) defines a project as a "long-term activity that involves a variety of individual or cooperative tasks such as developing a research plan and questions, and implementing the plan through empirical or document research that includes collecting, analyzing, and reporting data orally and/or in writing". Thomas (2000) defines Project-based learning (PBL) as a model that organizes learning around projects, and a PBL project must meet five criteria: centrality, a driving question, constructive investigation, autonomy, and realism.

Accordingly, the researchers conducted a PTMF model (an integration of Project and Task in MOOC-based Flipped classroom) for College English instruction to improve students' English language proficiency, learning engagement and their ability of using English in the real world.

The PTMF model

PTMF model is the integration of PBLL and TBLL in a MOOC-based Flipped classroom. The whole procedure of a PTMF model can be divided into 2 phases: out-of-class and in-class. Students are required to complete a project and a number of other online tasks via the College English MOOC out-of-class, while more intensive study related to the same topic will be done in class. Students are also required to present their projects in class, and peer evaluation and teacher's feedback are carried out in class.

"P" refers to Project-based Language Learning, which requires students to complete a project within one month in groups aiming at improving their ability to use required English to fulfill a project. The outcomes of the project will be shared with classmates through presentations.

"T" refers to task based language learning in New Standard College English MOOC(NSCE MOOC). Participants are required to complete all the tasks in NSCE MOOC.

"M" refers to the MOOC-based learning environment, where students are required to complete a series of tasks related to the content of the College English MOOC (Figure 1) so as to participate in classroom discussions actively. The instructional content is available online so that the students can access it at any time.

"F" refers to the flipped classroom. Although students access the course content online, they are still required to attend a face-to-face (F2F) class twice a week. Some in-class activites are organized to check students'online quality, to deepen the students' understanding of the text, to meet students' personal requirements.

The screenshot shows the homepage of the 'Chongqing Higher Education Online Open Course Platform'. At the top, there is a navigation bar with links to Home, Course Center, Resource Center, Learning Center, Quality Education, Innovation and Entrepreneurship, Review Platform, Micro-course Competition, English Course, and Online Name Course. On the right side of the top bar are links for Feedback, Common Issues, About Us, and a welcome message for 'Ma Wulin'. Below the top bar, there is a search bar with input fields for 'Input Keyword', 'Undergraduate Course', and a 'Search' button. The main content area features a banner for 'New Standard University English Integrated Course (Volume 1)' by Sichuan International Studies University, with a thumbnail image and the name 'Ma Wulin'. To the right of the banner are buttons for 'Submit Materials' and 'Preview'. On the left, a sidebar titled 'Course Construction' contains links for Basic Information, Performance Strategy, Curriculum Structure Management (which is highlighted with a teal border), Course Announcements, Team Teacher Management, Class Management, and Exam Question Bank. The main content area displays the 'Curriculum Structure' for 'B1 Unit 1 Food, Glorious Food!'. It lists four sub-sections: 'B1U1 AR1 Lead in' (published on October 10, 2017), 'B1U1 AR1 Text Understanding' (published on October 10, 2017), 'B1U1 AR1 Difficult Sentences' (published on October 10, 2017), and another 'B1U1 AR1 Lead in' section (published on October 10, 2017).

Figure 1. An Interface of New Standard College English MOOC.

Instructional design

This study used teaching material(both for the College English MOOC and the flipped classroom) from the coursebook *New Standard College English: Real Communication, an Integrated Course – Book 1 (Second Edition)*. This coursebook is designed for non-English major freshmen. Four units of this book were selected as part of this study. As shown in Figure 2 (below), each unit was taught in a MOOC-based flipped classroom setting. Before attending class, participants were required to both watch the prescribed instructional videos on CQOOC and to complete the related tasks. Participants attended the F2F class twice a week. Each class session comprised two periods of 45 minutes, for a total of 180 minutes in class per week. For the first of the two periods in each class session, students were engaged with a series of activities designed to promote a global understanding of the intended learning material through group discussions, debates, role plays, etc. The instructor also revised important information in class. At the beginning of the second period in each class session, students were required to complete a vocabulary test by scanning a QR-code with their smart phones. The vocabulary test was designed on *Sojump*,a special website used for online survey in China, and comprised 10 multiple-choice questions and 10 gap-fill activities to assess the students' learning outcomes. Results were shown on completion of the vocabulary test, allowing the instructor to give students specific feedback and to explain important or difficult points. Some language-

oriented activities targeted at improving students' creative use of vocabulary in the reading passages were also adopted in class, such as group story-making activities.

Based on their online and flipped learning, participants were also required to complete a group project by using target language out-of-class. The topic of the project ('family values' in this instance) was chosen from one of the instructional units. Students were required to make a TV program about family values in the form of a video. And they were encouraged to interview other students or teachers (both Chinese and foreigners) in the university in English. After four weeks' effort, they presented their findings in a face-to-face class session.

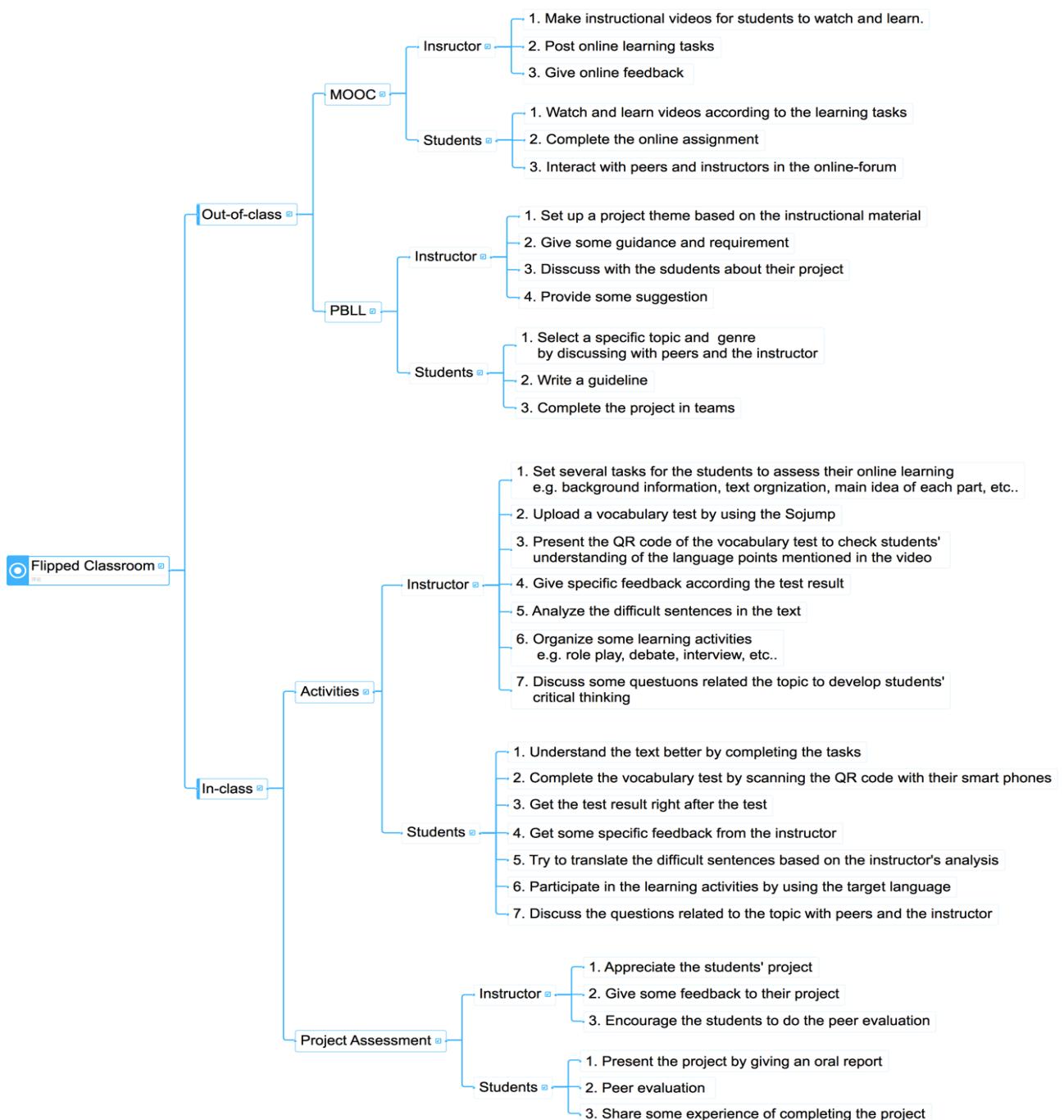


Figure 2. Detailed phases of flipped instruction based on a PTMF model

Method

Participants

Around 1,100 students were engaged in this school-wide project, but only two class groups of 67 students were randomly chosen to be the participants who attended the pre-test and post-test. Among the participants, 42 students were selected from Class A and 25 students were selected from Class B (of a total of 26 students in Class B, one student did not complete the post-test, so her data were deleted).

Instruments

Participants were required to complete a questionnaire and two tests (pre-test and post-test). Some volunteers were invited to be interviewed.

Questionnaires

There are 32 items in the questionnaire, 16 of which relate to the effort and time spent in College English MOOCs while the other 16 items relate to the project and task based on flipped classroom instruction.

Tests

Participants were required to attend the pre-test and post-test before and after the experiment which lasted for around 3 months. The experiment started on 8 October and ended on 8 January.

The items of the tests were selected from 2001 College English Test Band 4(CET4) papers, national English level test in China, which consists of (I)Listening comprehension, (II)grammar and structure,(III)reading comprehension, (IV)translation and (V)writing as well. The one took place in June was employed as pretest while the other took place in December was used as post-test in this research. This material was chosen due to its being unfamiliar to the participants and its high reliability and validity. Participants were informed that this test would have no effect on their degree programme results.

Interview

Interviews were carried out in order to gain a deeper understanding on the effects and limitations of the PTMF model. 10 participants attended the interview, and it was carried out online, via QQ. The participants were asked about their perception of the online course and about their feedback regarding the quality of the interactions (for both online and in-class instruction) based on the PTMF model.

Results and discussion

Test results

As shown in Table 2 and Table 3, significant changes have taken place in both Class A and Class B between pre-test and post-test scores (Table 2), and the *p* value for both classes is 0.000 (Table 3). This signifies a meaningful difference between pre-test and post-test, which indicates that the PTMF model has proved quite effective in improving student language proficiency in the experimental classes.

Table 2. Mean results from pre-test to post-test

Test	Mean		N		Std. Err	
	Class A	Class B	Class A	Class B	Class A	Class B
Pre-test	59.10	49.52	42	25	10.638	11.39
Post-test	68.29	67.64	42	25	9.192	8.89
Total	63.69	58.58	84	50	10.909	13.64

Table 3. Results of paired-sample t-test

		Mean	Std.	SE	T	df	Sig (two-tailed)
Class A	Pre-test - Post-test	-9.190	9.029	1.168	-6.597	41	.000
Class B	Pre-test - Post-test	-18.12	8.715	1.88	-10.396	24	.000

Results for questionnaire

Exploratory factor analysis was employed to narrow down the questionnaire items. The principal component analysis with varimax rotation was performed to extract underlying factors. Factor loadings equal to or greater than 0.4 were considered appropriate and Eigen values above 1 and scree plot was used for determining the number of factors (Figure 3).

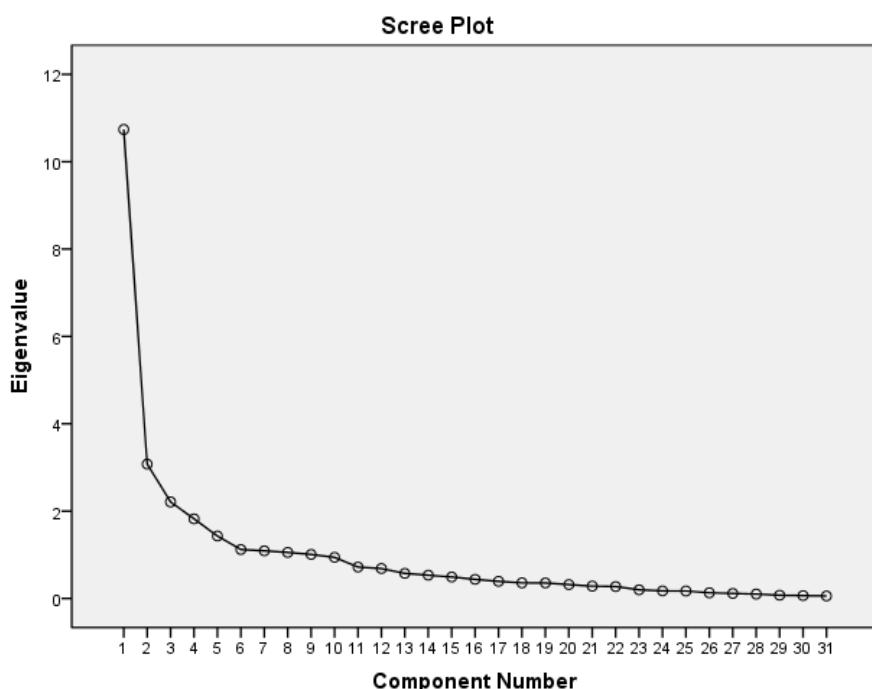


Figure 3. Factor Scree Plot

The Kaiser-Meyer-Olkin and Bartlett's Test of Sphericity ($p=.000$) were used to assess the appropriateness of the sample for the factor analysis. The KMO value is .819 while the p value of Bartlett's Test of Sphericity is .000. Thus, it is acceptable to group the items of the questionnaire into 5 factors. Some items were omitted due to their low contribution, and in the end only 20 items were selected. The Alpha of The Cronbach of the final questionnaire is 0.927.

Results of Factor 1: Video learning

Table 4. Students' attitude towards video learning

Factor	Item	Agreement
Video learning	3. I finished learning all the designated teaching videos before class.	64.2%
	4. I took notes in detail as I was learning the instructional video.	59.7%
	5. I studied difficult points of the text repeatedly in the instructional video until I understood them.	49.3%
	10. I completed every learning task carefully.	74.6%

According to the results (Table 4), video learning did happen within participants and played an important role in this research. The total percentage of respondents that agreed or strongly agreed with item 3 is 64.2%, which means 64.2% of participants have completed the task of learning all the instructional videos. 59.7% of participants have taken notes in detail when they are learning the instructional videos, 49.3% of participants studied the difficult points of the text repeatedly via instructional videos, and 74.6% of participants have completed every learning task carefully in the whole PTMF instructional model.

Results of Factor 2: Project-based language learning

Table 5. Students' feedback on the PBLL experience

Factors	items	Agreement
PBLL	28. I participated in the group project actively and completed the tasks assigned by the group leader.	92.5%
	29. In the process of completing the group project, my language proficiency has been improved.	82.1%
	30. In the process of completing the group project, my learning ability has been strengthened.	82.1%
	31. In the process of completing the group project, my cooperation ability and communication ability have been strengthened.	89.6%

In order to cultivate students' EFL learning motivation and also to strengthen their ability to use English in daily life, we introduced a project-based language learning model. More than 80% of groups completed the project within one month. From Table 5 we can clearly draw a conclusion that students are very interested in PBLL and that they think their language proficiency and learning ability as well as cooperation ability and communication ability have been strengthened.

Results of Factor 3: Online testing, in-class quizzes and assignments in the College English MOOC

Table 6. Students' attitudes towards the MOOC learning experience

Factors	items	Agreement
Online testing , quizzes and assignments	19. I was serious about completing my online courses.	74.6%
	20. As the answer of homework was published, I checked the answers carefully.	62.7%
	21. As the answer of Unit test was published, I checked the answers carefully.	62.7%
	22. When I logged in the platform, I read the notice.	73.1%
	23. I took the online unit tests seriously.	82.1%

PTMF model is based on College English MOOC, and participants are required to complete the MOOC tasks before they attend face-to-face instruction. Table 6 shows that more than 62.7% of participants completed the learning tasks of College English MOOC.

Results of Factor 4: Online interaction

Table 7. Students' online interaction in the MOOC-based course

Factors	items	Agreement
Online interaction	27. I participated in the discussion of online courses with high quality.	47.8%
	36. I had got a lot of help from teacher's online feedback.	62.7%
	37. It was interesting to read students' comments on BBS.	59.7%

Online interaction is always very important for MOOC learners, but from Table 7, it is obvious to see that participants' engagement in online discussion is not high, only 47.8% of participants engaged in the forum of College English MOOC with effort and 59.7% of participants think it is interesting to read students' comments on discussion board. 62.7% of participants get a lot of help from teachers' online feedback.

Results of Factor 5: Classroom engagement

Table 8. Students' classroom engagement in the MOOC-based course

Factors	items	Agreement
Classroom engagement	11. I tried to engage in classroom activities to improve my English proficiency.	64.2%
	12. The class activities were very helpful to improve my language level.	76.1%
	15. Classroom instruction effectively solved the problems I encountered in learning video before class.	74.6%
	17. I like the teacher's face-to-face instruction.	86.6%

From Table 8, we know F2F instruction is very important for 86.6% of participants and 74.6% of participants think F2F instruction effectively helped them solve the problems.

Feedback from interviews

Feedback on the effects and limitations of the PTMF model was collected via interviews. Most of the students agreed that learning English through CQOOC was useful and convenient. One student commented: "I could watch the videos on CQOOC any time, any place." Another concluded: "It was an effective way to preview and review the learning material." Challenges were also identified: "I like learning English on CQOOC, but it requires strong self-control."

Some students noted that sometimes the system of CQOOC was unstable, thus they may not always have access to it. One student also suggested: "The videos on CQOOC are very useful, but it would be much better if there are subtitles of the videos."

Conclusion

The PTMF instructional model works effectively in improving participants' English proficiency. Most of the students hold a positive attitude toward this learning experience. Hundreds of MOOCs will be constructed in China in the next three years, but how to use these MOOCs to improve instructional quality at undergraduate level poses a number of challenges. Serious consideration must be given to the application of MOOCs as part of programme planning. This study experimented with a blended teaching model aimed at

both increasing student engagement in learning English and at improving the instructional quality of College English. "It was advantageous to be able to study on the MOOC anywhere and at any time after enrolment" (Orsini-Jones et al., 2015b:454), certain challenges exist in relation to balancing the workload of online and F2F tasks and assignments for full-time students in China. The PTMF instructional model attempts to reach a balance in these two phases, but participants told the researchers that they are too busy in balancing their online tasks and F2F tasks. Yang (2017) concludes that "teachers thought that flipping a classroom may only be useful for more motivated students, and the extra workload of finding or making suitable pre-lesson online videos is the main concern for teachers." In the Chinese context, educators need to particular attention to how to manage MOOCs with due consideration for students' already heavy college workload. The continuing development of MOOCs in China require further research in the future, particularly in respect to use by both part-time and full-time students.

Acknowledgement

This work is supported in part by the National Philosophy and Social Science Planning Project of China under the Grant 14BYY077 in 2014 : Study on the Construction Paradigm of College English Massive Open Online Courses in China (中国大学英语大规模开放在线课程建设范式研究)

References

- Baralt, M., & Morcillo Gómez, J. (2017). Task-based language teaching online: A guide for teachers. *Language Learning & Technology*, 21(3), 28–43. Retrieved from <http://llt.msu.edu/issues/october2017/baraltmorcillogomez.pdf>
- Beckett, Gulbahar H. 2002. Teacher and Student Evaluations of Project-based Instruction. *TESL Canada journal* 19 (2): 52-66.
<https://files.eric.ed.gov/fulltext/EJ645364.pdf>
- Chen Hsieh, Jun Scott, Wen-Chi, Vivian Wu & Michael W. Marek (2016). Using the flipped classroom to enhance EFL learning, *Computer Assisted Language Learning*.
- Ellis, R. (2017).Position paper: Moving task-based language teaching forward. *Language Teaching* 50 (04): 507–526.
- Hamdan, N., McKnight, P., McKnight, K., & Arfstrom, K. (2013). A review of flipped learning. Retrieved from http://flippedlearning.org/wp-content/uploads/2016/07/WhitePaper_FlippedLearning.pdf
- Hsiu-Ting, Hung (2015).Flipping the classroom for English language learners to foster active learning. *Computer Assisted Language Learning*, 28(1), 81–96, DOI: 10.1080/09588221.2014.967701
- Hung, H.-T. (2017). The integration of a student response system in flipped classrooms. *Language Learning & Technology*, 21(1), 16–27. Retrieved from <http://llt.msu.edu/issues/february2017/hung.pdf>
- Jeff Mehring (2016). Present Research on the Flipped Classroom and Potential Tools for the EFL Classroom, *Computers in the Schools*, 33:1, 1–10, DOI: 10.1080/07380569.2016.1139912
- Liu, D. (2016). The reform and innovation of English course: a coherent whole of MOOCs, flipped classroom and ESP. *Procedia - Social and Behavioral Sciences*, 232, 280–286.

Lou, S.-J., et al. (2012). Construction of A Creative Instructional Design Model Using Blended, Project-Based Learning for College Students. *Creative Education* 03(07), 1281–1290.

Marina Gibbes & Lorna Carson (2014) Project-based language learning: an activity theory analysis, *Innovation in Language Learning and Teaching*, 8:2, 171–189, DOI: 10.1080/17501229.2013.793689

Norris, J. M. (2016). Current Uses for Task-Based Language Assessment. *Annual Review of Applied Linguistics*, 36, 230–244.

Orsini-Jones, M. (2015a) Integrating a MOOC into the MA in English Language Teaching at Coventry University. Retrieved from https://www.heacademy.ac.uk/sites/default/files/marina_orsini_jones_final.pdf

Orsini-Jones, M., Pibworth-Dolinski, L., Cribb, M., Brick, B., Gazeley-Eke, Z., Leinster, H., & Lloyd, E. (2015b). Learning about language learning on a MOOC: how Massive, Open, Online and "Course"? In F. Helm, L. Bradley, M. Guarda & S. Thouësny (Eds), *Critical CALL – Proceedings of the 2015 EUROCALL Conference*, Padova, Italy (450–457). Dublin, Ireland, Research-publishing.net. Retrieved from <https://dx.doi.org/10.14705/rpnet.2015.000374>

Orsini-Jones, M., Altamimi, S. & Conde, B. (2017). Integrating a MOOC into the Postgraduate ELT Curriculum: Reflecting on Students' Beliefs with a MOOC Blend. In Q. Kan & S. Bax (Eds), *Beyond the language classroom: researching MOOCs and other innovations* (pp 71–83). Dublin (Ireland): Researchpublishing.net. Retrieved from https://research-publishing.net/display_article.php?doi=10.14705/rpnet.2017.mooc2016.672

Thomas, J.W. (2000).A Review of Research on Project-Based Learning.
http://www.bobpearlman.org/BestPractices/PBL_Research.pdf

Yang, C. C. R. (2017). An investigation of the use of the 'flipped classroom' pedagogy in secondary English language classrooms. *Journal of Information Technology Education: Innovations in Practice*, 16, 1–20. Retrieved from <http://www.informingscience.org/Publications/3635>

Zhang, E., et al. (2018).SPOC-based Flipped Classroom of College English: Construction of an Effective Learning Model. *International Journal of Emerging Technologies in Learning (iJET)*, 13 (01).

Zhou, G. Q. and X. F. Jiang (2014). Theoretical Research and Instructional Design of the Flipped Classroom. *Applied Mechanics and Materials* 543-547: 4312-4315.

Alice Meurice, Julie Van de Vyver, Fanny Meunier, Carole Delforge* & Nathalie Delvigne**

Université Catholique de Louvain, Louvain-la-Neuve, Belgium

*Université de Namur, Namur, Belgium

**Haute Ecole Vinci, Brussels, Belgium

alice.meurice@uclouvain.be - julie.vandevyver@uclouvain.be -
fanny.meunier@uclouvain.be - carole.delforge@unamur.be -nathalie.delvigne@vinci.be

Open your data: digital literacies and language learning through the mobile app Actionbound

Bio data



Alice Meurice is a research assistant in modern language didactics and English for specific purposes teacher at the Université catholique de Louvain, Belgium. Her main research area is foreign language teaching and, more specifically, the integration of information and communication technologies in the foreign language learning classroom and curriculum. Other research interests include the use of OER in language learning in primary and secondary education.



Julie Van de Vyver is a PhD student and teaching assistant in English linguistics and didactics at the Université catholique de Louvain, Belgium. Her main research area is foreign language teaching and, more specifically, the integration of mobile technologies in the foreign language learning classroom and curriculum. Other research interests include the use of OERs on language learning in secondary education.



Fanny Meunier is Professor of English language, linguistics and didactics at the University of Louvain (UCL, Belgium). She has been involved in learner corpus research for over 20 years and her main research interest is the link between second language acquisition (SLA) studies and pedagogical applications. She is also actively involved in pre- and in-service teacher training and is collaborating to several international research projects on, among other aspects, bi- and multi-literacies and digital literacies.



Carole Delforge is a high school teacher qualified in media literacy and a research assistant at the University of Namur for the government project called "pacte d'excellence numérique". Her main research area is the use and integration of information and communication technologies in the foreign language learning classroom and curriculum..

Abstract

As part of a government project aiming to collect and select educational tools for the language classroom, a quasi-experimental study has been designed to assess the impact of the *Actionbound* mobile app in language learning and teaching. The open-access

website can be used by anyone to create public mobile interactive quizzes and hunts which are played on mobile devices, generally in specific 'situated' locations (such as a place the learners are visiting).

The research consists in having a digital hunt designed by a group of language student teachers and in testing the activity with 43 5th grade primary school pupils. The aim of the study is two-fold since the usefulness of the activity will be evaluated not only in terms of language acquisition but also in terms of the acquisition of digital literacies.

The present paper focuses on the second aspect of the study and reports on the design and methodology that have been used to develop and assess the acquisition of digital literacies by the student teachers. During the preparation phase of the project, the student teachers' awareness has been raised on the use of digital tools in the classroom, the creation of open content and the download and upload of multimedia content when creating the game. Qualitative data has been collected from the student teachers through questionnaires and a feedback session and these results will be discussed during the CALL 2018 conference.

Conference paper

Introduction

The numerous advantages of Open Educational Resources (OER) have encouraged the European Union to promote these "universal educational resource[s] available for the whole of humanity" (UNESCO, 2002, p. 28). On top of enabling international collaboration, they facilitate knowledge sharing and policy dialogue between institutions and states (Sabadie, Muñoz, Punie, Redecker, & Vuorikari, 2014). From a pedagogical viewpoint, studies have demonstrated their potential to stimulate learners' interest, satisfaction and confidence in a task (Bliss, Robinson, Hilton, & Wiley, 2013). Research has however also shown that, despite their interest in the potential of OER, educators to date still have little knowledge of such resources (Pérez-Paredes, Ordoñana Guillamón, & Aguado Jiménez, 2018).

The very concept of OER implies that they are "in the public domain or introduced with an open license [, meaning] that anyone can legally and freely copy, use, adapt and re-share them" (UNESCO, n.d.). Some studies, nevertheless, came to the conclusion that educators lacked sufficient knowledge in copyright licensing (Mishra, Sharma, Sharma, Singh, & Thakur, 2016; Rolfe, 2012). The *Digital Competence Framework for Citizens* nonetheless considers copyright and licensing as part of a "digital creation" competence (Carretero, Vuorikari, & Punie, 2017). In order to make more frequent use of OERs, education professionals should not only be trained on the legal aspects of publication and sharing of material, they would also need to improve their technological skills and work in an OER-supportive environment (Littlejohn and Hood, 2017).

When used in a mobile setting, OER allow for context-aware language learning (Traxler & Kukulska-Hulme, 2016). Kukulska-Hulme and Shield (2008) insist on the fact that Mobile Assisted Language Learning (MALL) is not a mere combination of Computer Assisted Language Learning and Mobile learning. MALL affordances transcend those two notions by bringing technology anywhere, anytime, therefore making the language learner himself mobile (Viberg & Grönlund, 2012), and allowing for learner-centered activities and spontaneous interaction and access in various contexts (Kukulska-Hulme & Shield, 2008). MALL also offers the multiple advantages of authenticity and situated learning, which still remain largely unrealized to date (Lindsay, 2015; Pegrum, 2017).

Pegrum's 3-Mobilities framework (2017) differentiates between uses of mobile devices where (1) only the device to be mobile, (2) moments when both the device and learner can move, and a third level (3) where not only the device and the learner, but also the

learning experience are mobile. Like Pegrum, Puentedura (2018) pleads in his SAMR model for a fruitful and pedagogical integration of technology within teaching activities. Going from simple substitutions or augmentations of traditional tasks, he advocates a full transformation through technology to achieve a genuine modification or redefinition of learning with new tasks that would have been inconceivable in a traditional setting. The use of tablets is an opportunity to make good use of digital games and have language learners enjoy their benefits (Cornillie, Thorne & Desmet, 2012), as these games can have a positive effect on their motivation to learn (Goto Butler, 2017).

Our research thus endeavours to encompass various aspects of language learning through mobile technology and gaming, as well as focus on twenty first century skills and a critical approach to open educational material.

Context of study

In the framework of a government project funded by the Belgian French-speaking Community, our group of researchers in foreign language teaching and digital literacies (coming from various Higher Education institutions) has been focusing on technology-based activities that could potentially enhance language learning and teaching. As part of the project, the team has designed a study aiming to assess the use of the *Actionbound* mobile app with 43 5th grade primary school pupils in the learning of reading strategies at a beginner level of Dutch as a foreign language. The second part of the research, which is the specific focus of this paper, aims to assess the creation of the digital OER by 11 BAC2 language student teachers.

Actionbound is an OER available on the web that can be used to create public, mobile and interactive quizzes and hunts, which can be played on mobile devices, usually in specific locations. Initially designed as a media education project, it allows users to encounter different aspects linked to the use or creation of open content. A public bound becomes an Open Resource that can be shared and used by anyone. In addition, copyright issues are addressed explicitly as license types must be entered each time a picture or video is uploaded by a user. Finally, *Actionbound* allows the users to design (educational) hunts while exploiting mobile and gaming affordances such as immediate feedback and the creation of digital content. The players can be prompted to take photos and record audio or video files. Some features also make use of QR codes to be scanned on site to obtain augmented reality information.

The present paper first reports on the design and methodology that have been used to develop and assess the acquisition of digital literacies by the 11 student teachers who designed the Actionbound hunt with the help of the research team. The last section outlines some preliminary findings. The two research questions addressed in the study are:

- RQ1) Does the use of Actionbound [along with the pedagogical support of the research team] raise the student-teachers' awareness regarding the concept of image rights?
- RQ2) Does the use of Actionbound [along with the pedagogical support from the research team] raise the student-teachers' awareness regarding the concept of OERs?

The impact of pedagogical support has been inserted into both research questions. Even if it may arguably be difficult to assess the exact proportion of that type of support, its inclusion was deemed essential in the student-teachers' learning process. The use of Actionbound and support from specialists will thus be treated as two different but complementary variables in the analysis.

RESEARCH DESIGN

Preparation phase

The research consisted in having a mobile and a paper hunt designed by language student teachers - monitored by the research team - aimed at young Dutch as a foreign language learners. In January 2018 researchers introduced the project to the group of student teachers, all the while raising awareness concerning the integration of technologies in teaching, the creation of open educational content, as well as copyright issues. The students were presented with Puentedura's SAMR framework (2013) and Pegrum's three mobilities framework (2017) in relation to the *Actionbound* app. The Hergé Museum in Louvain-la-Neuve was the chosen setting for the activity. The very strict copyright rules regarding the use of Hergé's work allowed for a clear presentation of copyright issues, exceptions to copyright for Belgian educators and licences that could be used when creating open content. Following the presentation and discussion, the students discovered the app via a demo *Actionbound* hunt and started creating the game based on a reference document on teaching reading strategies (FESeC, forthcoming). Each question had to be in connexion with a specific reading strategy and be designed for a hunt both on paper and on *Actionbound*. Some questions might slightly differ in form but they need to rely on the same reading strategy (e.g.: 'draw' vs 'take' a picture of an object). The hunt was proofread by teachers, researchers of the team, and the director of the Hergé Museum. Adaptations were made in terms of content, copyright issues and design so that the bound could be made open and reusable by any future visitor of the museum.

***Actionbound* in the Hergé Museum**

The experimentation of the hunts took place on 29 March, 2018. The digital hunt was taken by groups of four pupils and was composed of, among others, multiple-choice questions, open questions, sort-list questions and photo-audio-video content production. The pupils would have two attempts to answer a question, after which they would receive immediate feedback on their score and the correct answer. The paper hunt was also a team activity and was composed of multiple-choice questions, open questions, matching questions, sort-list questions and content production (e.g. drawings). The game, which was approximately 90 minutes long, was played by two groups (total n=43) of 5th grade primary school pupils. The experimental group (n=24) followed the hunt on tablets using *Actionbound*, whereas a control group (n=19) followed the same indications on paper throughout the museum. While promoting an encounter with Hergé's life and work, the game was specifically designed to help learners develop reading strategies in a foreign language, namely Dutch here.

Data collection and analysis

For the purpose of this paper, the analyses will focus on the student teachers' perceptions of the use of *Actionbound* after discovering the digital tool, receiving pedagogical and technical support from the research team, and witnessing the pupils' experience of the tool. Self-report data has been collected on the student teachers' impressions by means of a questionnaire, including open questions as well as five-point Likert scale statements. In addition, a focus-group session was held immediately after the experimentation and the research team collected feedback from the student teachers on their activities throughout the creation of the hunt. Patterns identified from the data will be categorized so as to bring out core variables and subcategories (Cohen, Manion & Morrison, 2007). Beyond the perceived added value of *Actionbound*, information has been gathered on their attitude regarding OERs, asking them - for instance - whether they now felt comfortable using someone else's work or sharing their own. Other items addressed the notions of copyright and digital privacy, as well as the efficiency of both the research team's support and the features of *Actionbound* in making a lasting impression on those matters. Using a combination of quantitative methods (Schellings & Van Hout-Wolters, 2011) thanks to the collected observation and qualitative analysis of self-report data allows for a broader view and a deeper understanding of the student teachers' learning process. A qualitative approach to

analyzing the data is appropriate in this case, since the number of respondents is limited and because the study aims at providing information on the students' awareness regarding open content and OERs, and at concluding with pedagogical implications.

Preliminary findings and discussion

From the various meetings with the students prior to the actual experiment, a lack of proficiency was identified in dealing with image rights, be it in an informal or instructed/pedagogical context. Likewise, the students stated they were not familiar with the concepts of OER or open licenses. Throughout the development of the game, the students discovered the use of copyright but also of public domain images or media. The creation of the hunt was quite challenging as some students struggled with the implementation of the copyright rules or were reluctant to follow them. However, the openness of the content they would create was not perceived as problematic and the students were quite enthusiastic about having access to a large number of OER for their teaching.

The data from the questionnaires is currently being analyzed in detail. Preliminary analyses however suggest that most students 'quite agree' on the fact that *Actionbound* brings forward the concept of image rights. The introduction in class to image rights was mostly seen as useful but also necessary to the project. Surprisingly, however, the majority of the student teachers responded that they would rather not take these rights into account when creating pedagogical sequences. Regarding the concept of OER, the respondents consider the fact that their activity on the app is free and accessible by anyone mostly as motivating. They are quite interested in using OER created by others but are still reluctant to creating more open resources.

In the framework of this study, the impact of the use of Actionbound on the students' awareness appears to be - after the initial analysis - positive but limited. The discovery of the tool, coupled with pedagogical support, certainly fosters critical thinking on the implementation of image rights (RQ1) and on the exploitation of OERs (RQ2). The student teachers are not opposed to the use of OERs or open licenses and do not mind sharing their Actionbound activity. Still, this project is only but a first step towards the actual integration of these concepts in regular teaching practices. The results do not seem to indicate a strong correlation between awareness and implementation, which could be explained by various factors such as the student teachers' experience as learners, the complexity or the novelty of the concept or the lack of a collaborative culture among teachers.

References

- Bliss, T., Robinson, T., Hilton, J., & Wiley, D. (2013). An OER COUP: College teacher and student perceptions of open educational resources. *Journal of Interactive Media in Education*, 1, 1–25.
- Burston, J. (2014). MALL: the pedagogical challenges, *CALL*, 27 (4), Special issue: XVth International CALL Research Conference, 344-357. DOI 10.1080/09588221.2014.914539
- Butler, Y. G. (2017). Motivational elements of digital instructional games: A study of young L2 learners' game designs. *Language Teaching Research*, 21 (6) 735-750. DOI 10.1177/1362168816683560
- Carretero, S.; Vuorikari, R. & Punie, Y. (2017). DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use, EUR 28558 EN, DOI 10.2760/38842

- Cohen, L., Manion, L. & Morrison, K. (2007). Research methods in education. Sixth Edition. London & New York : Routledge.
- Cornillie, F., Thorne, S. L. & Desmet, P. (2012). ReCALL special issue: Digital games for language learning: challenges and opportunities. *ReCALL*, 24, 243-256 DOI 10.1017/S0958344012000134
- FESeC. (forthcoming 2018). Néerlandais (compréhension à la lecture) Langues Modernes. Outil pédagogique.
- Kukulska-Hulme, A. & Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL*, 20, pp 271-289 doi:10.1017/S0958344008000335
- Lindsay, L. (2016). Transformation of Teacher practice using mobile technology with one to one classes: M- learning pedagogical approaches. *British Journal of Educational Technology*, 47 (5), 883-892.
- Littlejohn, A. & Hood, N. (2017). How educators build knowledge and expand their practice: The case of open education resources. *British Journal of Educational Technology*, 48(2), 499-510. DOI <https://doi.org/10.1111/bjet.12438>
- Mishra, S., Sharma, M., Sharma, R., Singh, A., & Thakur, A. (2016). Development of a scale to measure faculty attitude towards open educational resources. *Open Praxis*, 8(1), 55-69. DOI 10.5944/openpraxis.8.1.236
- Pegrum, M. (2017, December). Revisiting Mobile Learning: Seizing New Opportunities for Language Learning and Cultural Exploration. Keynote presentation at BAAHE 2017 - Let's Inter-Act! Innovative Teaching Practices in English Studies.
- Pérez-Paredes, P., Ordoñana Guillamón, C. & Aguado Jiménez, P. (2018). Language teachers' perceptions on the use of OER language processing technologies in MALL. *Computer Assisted Language Learning* 1(24), DOI: 10.1080/09588221.2017.1418754
- Puentedura, R. (2013). SAMR: Moving from Enhancement to Transformation. Conference paper in AIS ICT Management and Leadership Conference, Canberra.
- Rolfe, V. (2012). Open educational resources: Staff attitudes and awareness. *Research in Learning Technology*, 20, 1-13. DOI: 10.3402/rlt.v20i0/14395
- Sabadie, J., Muñoz, J., Punie, Y., Redecker, C. & Vuorikari, R. (2014). OER: A European policy perspective. *Journal of Interactive Media in Education*, 1(12). DOI: 10.5334/2014-05
- Schellings, G. & Van Hout-Wolters, B. (2011). "Measuring strategy use with self-report instruments: theoretical and empirical considerations." *Metacognition and Learning*, 6(2), 83-90.
- Traxler, J. & Kukulska-Hulme, A. (Eds.). (2016). Mobile learning: The next generation. London: Routledge.
- UNESCO. (2002). Forum on the Impact of Open Courseware for Higher Education in Developing Countries: final report. Retrieved from <http://unesdoc.unesco.org/images/0012/001285/128515e.pdf>
- UNESCO. (n.d.). Open educational resources | United Nations Educational, Scientific and Cultural Organization. Retrieved from <http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/>

Viberg, O. & Grönlund, A. (2012). Mobile-Assisted language learning: a literature review. In Specht, M., Sharples, M., & Multisilta, J. (Eds.) (2012). Proceedings of the 11th World Conference on Mobile and Contextual Learning (mLearn 2012). October, 16-18, 2012, Helsinki, Finland. Published by CEUR Workshop Proceedings, 2012, Vol. 995. Retrieved from <http://ceur-ws.org/Vol-955/>

Fatemeh Nami

Amirkabir University of Technology, Tehran, Iran

f.nami@aut.ac.ir - f.nami22@gmail.com

Anytime anyplace language learning via asynchronous interactive content: challenges and implications for CALL course design

Bio data

Fatemeh Nami is an assistant professor in the Department of Foreign Languages at Amirkabir University of Technology, Tehran, Iran. She holds a Ph.D. in Teaching English as a Foreign Language (TEFL) with a special focus on CALL. Her current research interests include distance education, learning management systems, a/synchronous interactive content design and development, academic writing, and teacher education.

Abstract

The present study reports on the process of designing and developing interactive SCORM-based content using Articulate Storyline2 software at Iran Language Institute. The content was developed for *Writing Business Correspondence*, an online asynchronous course offered via the LMS of the institute. A group of three including an experienced language teacher, an IT specialist, and a CALL specialist participated in the process of designing and operationalizing the content. An initial draft of the content was pilot tested with a group of participants in a synchronous online course. Drawing on students' feedback and teacher's experience, the content was revised. However, considering the inherent differences between a real-time, teacher-led, online course and an anytime, anyplace, asynchronous course, the content underwent several rounds of revisions before a scenario was proposed for the interactive SCORM-based content. This study highlights the pedagogical implications and challenges of designing and developing such content for teaching a particular language skill. It is suggested that the content designed for an online synchronous course does not necessarily translate into other modes of courses.

Conference paper

Introduction

Parallel with the growing demands for English for vocational purposes (EVP) courses in Iran, have grown interests in anytime anyplace learning opportunities. The rapidly growing Iranian workforce as well as many individuals who are currently occupying different positions in different sectors are widely calling for flexible open courses which are accessible at anytime and anyplace. These potential learners prefer to master one particular language skill to satisfy their occupational needs and requirements. However, due to the inflexible and rigid working hours, they usually do not find the opportunity to attend regular real-time online or face-to-face sessions at a specific time on a weekly basis. As a result, asynchronous online courses which are usually hold on learning management systems (LMSs) are becoming more and more popular. As information systems, LMSs "process, store and disseminate educational material and support communication associated with teaching and learning (McGill & Klobas, 2009, p. 496). In other words, LMSs provide the opportunity for educators and materials developers to move beyond the conventional educational content by supporting the development and

delivery of innovative digital content and innovative ideas for teaching beyond the confines of the physical classrooms.

Unlike the synchronous ones, asynchronous courses heavily rely on multimedia and interactive content designed and developed following “a collection of standards and specifications for e-Learning” (Silva et al., 2015, p. 1203) known as Sharable Content Object Reference Model (SCORM) standards and do not require the real-time presence of the teacher. However, based on the online teaching experience of the researcher in different universities and language institutes, it can be claimed that the content used in most of asynchronous online EVP courses usually comprises one or all of the following: video recordings of teachers’ lectures on different topics, screencasts of course content PowerPoint Presentations with teacher’s narration and audio-instruction, and multiple choice questions for students to self-assess their understanding of the topics discussed. Each course usually contains a number of such files, which are uploaded either one by one on a weekly or daily basis or collectively at one time to the LMS depending on the purpose of the course. The dominating rationale in design and development of this type of content appears to be that what works in a face-to-face or online real-time synchronous course works well in an asynchronous one.

In reality, however, this assumption does not always hold true. For example, as Ya Ni (2013) acknowledges, in conventional classrooms, students have the opportunity to interact with students and teacher, asking questions, disagreeing, and sharing their viewpoints. This type of communicative interaction is also possible in real-time online synchronous classrooms. In asynchronous courses, in contrast, students do not have access to a real-time teacher or peers. The only interaction that takes place is between the user (in our case students) and the instructional content. Hence, to be effective, the content which is designed for asynchronous courses should be designed carefully addressing the potentials and challenges of this mode of teaching/learning. In an attempt to satisfy this need and contribute to research base on asynchronous English language teaching/learning research, the present study elaborates on the joint experience of a group of CALL, IT, and language teaching specialists in designing an instructional scenario for an asynchronous open course, the content of which would be accessible (at anytime and anyplace without the need for the real-time presence of a teacher). It also reports the challenges and implications that the mode of delivery imposes on the content, its presentation, design, ‘accessibility, exchangeability, use, and reusability.

The research context

The study was carried out in Iran language institute (ILI). With more than sixty years of experience in teaching English, French, German, Spanish, and Arabic (and recently Russian) as a foreign language, ILI is the most widely known semi-private language institute in the country with 270 branches in almost all of the provinces and more than one million learners at different proficiency levels (Siamian Gorji, 2017). As a part of its long-term development plan and in response to the increasing demands for flexible anytime anyplace English for vocational purposes courses, ILI launched its learning management system to attract potential learners who might be interested in learning a particular language skill over a short period of time rather than mastering English by participating in scheduled long-term face-to-face classes.

Interactive SCORM-based content development for asynchronous courses: ILI strategy

The learning management system at ILI offers online courses in two modes: synchronous and asynchronous. Since its first launch two years ago, it has hosted open English for specific purposes courses, with a focus on master of one particular language skill (mostly writing and reading) for academic or vocational purposes. These include: *Academic Writing*, *Reading Club*, *Writing Business Correspondence*, and *Writing for ILETS*. The term content stands for a co-authored, adaptive, audio-visual, interactive teaching material developed for special purposes and special contexts using Articulate Storyline2 content

authoring software. The output is embedded in the LMS of the institute under study following the SCORM standard. Users' presence and activities are gathered by the system (LMS) with a view (a) to assessing and supporting the learner, (b) to analyzing the learning process, and (c) to improving the learning environment.

The process of developing interactive SCORM-based content for an asynchronous course encompasses the following steps.:

1. *Initial content design by an expert language teacher with IT knowledge*: First, the instructional material is either developed or extracted from available course books by a group of language teachers who have the experience of teaching the subject in face-to-face classes. Once the initial draft is completed, it is directed to an expert language teacher who not only has the knowledge of content and experience of teaching it but also is knowledgeable at information technology and online instruction. This language teacher edits the content (teaching plans, exercises, tasks, and exam questions) and designs an instructional scenario for operationalizing it in an online real-time (synchronous) course considering the potentials and constraints of the environment.
2. *Digital content development based on the instructional scenario*: The finalized scenario is sent to a computer assisted language learning/teaching (CALL/T) specialist (in the case of the present study, the researcher) for further refinement. During this phase, several rounds of meetings are held between the language teacher and CALL specialist to ensure that the instructional design, tasks, exercises, and exam questions defined in the scenario properly address the language skill (the focus of the course) and are feasible in an online real-time classroom. Once the final editing is made, Interactive PowerPoint Presentations (containing animations, transitions, moves, and images) are developed for each session.
3. *Digital content piloting in a real-time synchronous course*: Prior to defining an asynchronous course and developing its relevant content, the pack of PPPs designed and developed is pilot tested in a real-time synchronous course to check its quality and function along with students' feedback. Each PPP file is individually uploaded in Adobe Connect online classroom environment. The expert language teacher who has developed the initial draft of the instructional design takes the responsibility of teaching the content in the pilot synchronous course, with an IT specialist also logging into the system and being present all through the sessions as technical support. In addition to the interactive PPPs, the teacher also uses the whiteboard function and the sessions are recorded for future reflection and of course students' access.
4. *Digital content final revision*: Drawing on the feedback generated by students participating in one or two rounds of pilot synchronous courses; classroom recordings, namely the technical glitches faced during each session; and expert teacher's online teaching experience, the scenario or lesson plan as well as the interactive content which was initially developed for a real-time online classroom undergoes another round of revision. At this stage, usually some changes are made in the type of the activities and tasks included in the content to make them apt for an asynchronous course. An important point in developing interactive content for an asynchronous online course is considering the absence of a real-time teacher. In contrast to face-to-face classroom or online synchronous courses, asynchronous ones usually lack a real-time teacher and his/her feedback.
5. *Interactive content development for asynchronous classroom using Articulate Storyline software as a tool for content authoring*: Currently the content authoring tools available in the market facilitate the design and development of asynchronous content for learning management systems and online courses in different formats and standards, such as SCORM. From among different software types, Articulate Storyline was selected for content development due to its various functionalities for creating interactive content, the most important of which is its

potential for operationalizing user-adaptive teaching/learning scenarios. In other words, users can be directed to different parts of content, receive audio- or video- or text-based feedback, encounter different types of tasks, and check responses depending on the clicks they make and answers they provide to exercises and activities. This compensates for the absence of a real-time teacher to some extent. A group of IT specialists along with the CALL expert work on interactive content development using Articulate Storyline.

6. *Audio recording teacher instruction in a studio:* The transcript of classroom instruction for each session was prepared by the expert language teacher and audio files were recorded in a studio using the transcript. The audio files were then inserted into the digital content at specific parts which were assigned in the scenario.
7. *Sharable Content Object Reference Model (SCORM) Standard use for content saving:* To be accessible in the learning management system, the content is saved using SCORM standard. Depending on the focus and purpose of the course, the content is saved and uploaded in chunks usually on a weekly basis.

Writing Business Correspondence course

Following the above discussed steps, an SCORM-based interactive content was developed for an EVP course with a focus on writing business letters. The course was first pilot tested in a synchronous course for two successive terms. It comprises fifteen separate files which were uploaded and made accessible to students on a weekly basis. Considering the constraints of the environments and the software used for developing the content, the material development team (i.e., the language teacher, the CALL expert, and the IT specialist) had to make some changes in the type of classroom activities and tasks which were to be included in the scenario of each session:

- *Dividing teacher's classroom instruction into four to six chunks for audio recording:* Unlike the real-time classroom in which the tasks and activities were usually practiced at the final half of the session following teacher's classroom instruction, the asynchronous classroom's teaching time was divided into four to six ten-minute periods for each of which an audio recording was inserted into the scenario. As the audio files were played, students also could watch media files and animations elaborating teacher's instruction. Each instructional chunk was followed by a specific activity type for enhancing student's understanding of the topic discussed in the audio. Depending on student's responses and the choices s/he makes, the system provides specific text-based feedback and enables the user to check his/her answers before directing him/her to another instructional chunk. The rationale for breaking up the classroom instruction was making it adaptive to user's choices. This way, one student might watch and work on a part more than once before being directed to another part of the lesson depending on the responses s/he offers to the questions while another student might proceed to the next level without the need to repeat the previous section.
- *Replacing long-essay tasks with short-response activities:* Given that Articulate Storyline does not support long-essay task type, these activities were replaced with short-response equivalent tasks for the asynchronous course. However, due to the fact that writing sophisticated business letters was the main focus of the course, students needed to practice writing letters. To compensate for this, participants were provided with instruction on writing a letter for each session and send it via email to the instructor to receive feedback and comments. In other words, in spite of the absence of a real-time teacher, students had access to the instructor via email.



Figure 1. Screenshot of the opening page of SCORM-based interactive content

- *Extending classroom time beyond the confines of real-time classrooms:* Considering the flexibility of such content and its availability at any time any place, users can work on the content at their own pace. This enables the developers to include activities and tasks that might not be feasible in real-time classrooms due to time constraints. In the case of the present project, end-of-the-session mini-quizzes were included in each SCORM file. These timed quizzes enabled users to self-assess their understanding of the content presented to them in each session. Students had 20-minutes to go over two letter writing tasks. In the first one, they were asked to complete a business letter using appropriate words from a list. In the second one (see Figure 2), students needed to identify ten mechanical, punctuation, spelling, grammatical, or word choice mistakes made in a business letter. At the end of the exam, they could check their responses and find out their problems.

Marcia Wess sent an e-mail ordering supplies. The shaded boxes show **ten** places where she made errors. Fill in the blanks with the correct forms.

To: order@YourSupplies.net
Sub: Furniture Order
Date: Tue, Mar 12, 2017

① Dear **Ordered** Department:
 We would like to **ordering** the following items **at** your spring catalog? ④
 ② Page 32
 One oval conference table, 48"x96", dark oak
 BVS-OV 4896TDO, \$187.00
 ③ Page 9
 Two 72" bookcases with six 11" shelves, walnut
 GEG-4952M, \$299.00/bookcase
 ⑤ We would like the table and the book cases **delivers** as soon as possible, but no later than April 12.
 Please ship **for** the address below.
 ⑥ Please let me know the total **costing**, including shipping and handling. We will then provide you with the credit card number.
 ⑧ Since you have any questions, you can telephone me **to** (310) 555-2424. ⑩
 Sincerely yours:
 Marcia Wess
 Better Business Inc.
 1647 West Lake St.
 Los Angeles, CA 90020

Figure 2. Screenshot of task 2 in end-of-the-session mini-quiz

- *Recording users' collaboration with the system:* Students' presence and interaction with the content was recorded by the LMS with a view (a) to assessing and supporting the learner and his/her progress, (b) to analyzing the learning process, and (c) to improving the learning environment.

Conclusion and implications

The study discussed above reported the joint experience of a group of CALL, IT, and language teaching specialists in designing an instructional scenario for an asynchronous open course. A number of challenges and implications that the mode of delivery impose on the content, its presentation, design, accessibility, exchangeability, use, and reusability can be discussed as follows. It is worth mentioning that while the SCORM-based interactive content developed for an asynchronous course is accessible and exchangeable across different learners at any time any place, the type of tasks and activities planned for real-time classrooms cannot be easily translated into such content. This in part relates to constraints of the content authoring tools available in the market for designing particular activity types to teach specific language skills, namely writing. This highlights the essence of developing more sophisticated software types which enable developers to author content that satisfies different users' needs. Not all language skills can be properly addressed using the available content authoring tools for asynchronous courses. Speaking is one such skill. Therefore, speech recognition can be added as an essential built-in feature to the existing or newly designed software for content development.

References

- McGill, T. J., & Klobas, J. E. (2009). A task-technology fit view of learning management system impact. *Computers & Education*, 52, 496-508.
- Siamian Gorji, Z. (2017). Kanoon-e Zaban-e Iran dar gozar zaman pishgam-e boomisazi zabanhaye khareji. Tehran: Iran Language Institute Publications.
- Silva, F. M., Neto, F. M. M., Burlamagui, A. M. F., Demoly, K. R. A., & Pinto, J. P. F. (2015). Providing an Extension of the SCORM Standard to Support the Educational Contents Project for t-Learning. *Creative Education*, 6, 1201-1223.
<http://dx.doi.org/10.4236/ce.2015.611118>
- Ya Ni, A. (2013). Comparing the effectiveness of classroom and online learning: Teaching research methods. *Journal of Public Affairs Education*, 19(2), 199-215.

Neasa Ní Chiaráin & Ailbhe Ní Chasaide

Trinity College, Dublin, Ireland

neasa.nichiarain@tcd.ie - anichsid@tcd.ie

Recycling learner data for acquisition of targeted linguistic features: a custom-built iCALL platform

Bio data



Neasa Ní Chiaráin is Ussher Assistant Professor in Irish Speech and Language Technology in the School of Linguistic, Speech and Communication Sciences, Trinity College, Dublin. She works on the ABAIR Irish language speech technology initiative (www.abair.ie). Her current research focuses on the use of speech synthesis/recognition in the development and implementation of speech-based iCALL tools for the teaching/learning of Irish.



Ailbhe Ní Chasaide is Professor of Phonetics in Trinity College, Dublin. She founded the Phonetics & Speech Laboratory in CLCS and is the Principal Investigator of the ABAIR initiative (www.abair.ie). She has directed over 20 funded research projects, on voice analysis and the role of voice in communication, on the prosody of Irish, and on the development of speech technology and linguistic resources for Irish.

Abstract

This paper describes an open, web-based iCALL platform for the autonomous learner that focuses on writing, but also promotes listening, speaking and reading skills. It provides immediate corrective feedback to the learner on targeted linguistic features. It harvests learners' productions, both written and spoken, and this in turn provides the basis for targeting further features for corrective feedback. While the raw data contains personal information and cannot be shared, the tabulated pooled data can be shared and will be reused in further applications. As the acquisition process for Irish is little understood, the analysis of learners' errors will over time assist in tabulating the acquisition stages, contributing to this much needed area of knowledge.

Conference paper

This paper describes an open, web-based, iCALL language learning platform, *An Scéalaí*, (*The Storyteller*), currently under development. This application focuses on the skills of writing, listening, speaking and reading. At the same time, the platform is designed to collect user-generated content, providing a rich source of learner error data, which will be exploited both within the application and beyond, as described below.

Learner errors tend to be quasi-universal within a given linguistic community, (e.g. French children learning English). Teachers discover these errors and devise strategies to correct them, often on an individual basis. For the minority language (here Irish) learner errors tend to become fossilized, something that can lead to pidginisation. As the same types of errors constantly recur, iCALL may offer an ideal solution for targeted corrective feedback at appropriate levels.

An Scéalaí is part of a wider research initiative, (*ABAIR*), which concerns the development of speech technology for Irish, such as multi-dialect text-to-speech systems (Ní Chasaide et al., 2017). As part of this, educational applications are being simultaneously developed that will enhance the Irish language learning environment as well as applications for access, disability and general public use.

Irish has a rather unique linguistic context. It is an endangered language (Moseley, 2013) with a relatively small population of native speakers, mostly located in Gaeltacht areas in the West of Ireland. However, as the first official language of the State and an official language of the EU, it is taught to school-leaving level nationwide. Outside of the Gaeltacht areas, there are considerable divergences in the level of language that may be attained. In mainstream English-medium schools, the level is highly variable and outcomes often poor. In the growing number of Irish-medium schools the level of acquisition is, as would be expected, much more advanced. However, both types of schools are tied to curricula that are largely exam-oriented and not always relevant to the life of the individual teenager in the modern world. In this context, the use of modern interactive technology has a particular potential for impact that would not necessarily pertain in the major languages.

An Scéalaí, aims to provide a teaching/learning context where errors are systematically analysed and reused for corrective feedback. At the outset, learners register on the system and provide their social/linguistic background information (*learner profile data*). They are then prompted to compose text (currently a reflective personal diary), which is subsequently read aloud by a synthetic voice. The voices are natural-sounding and a choice of the three main dialects is available. The learner corrects their own text, guided both by *hearing* the errors in the spoken output, and by *prompted visual corrective feedback*, focused on selected linguistic features. At the current stage of development two linguistic feature-checkers are included: (i) one caters for a pervasive spelling rule, where the vowel letters have to agree with the quality of adjacent consonants, reflecting a basic phonological feature of the language, and (ii) the second concerns the lenition (weakening of stops to fricatives) as occurs after prefixes (lenition, involving this alternation of stops and fricatives is a pervasive morphophonological process in Irish).

Using the auditory and explicit visual corrective feedback, learners have the opportunity to iteratively improve their text. Once that process is completed to learners' satisfaction, they can record themselves reading their text, comparing it to the 'native' synthetic voice. This *learner-generated data* is accessible to both learner and teacher, as well as to the platform designers and researchers. This content guides the ongoing development of the corrective feedback tools. It is also providing a growing database for a detailed error analysis that will enable charting of the acquisition process.

The Cycle and Recycling of Learner Data

An Scéalaí serves as an effective language-learning platform for classroom/autonomous learners at all levels as well as providing a growing learner database for acquisition research and a cyclical programme of iCALL development. The *learner data* being harvested includes text and sound files (learner speech and synthetic renditions of learner compositions) of the iterative renditions by the learner. These data underpin personalisation and data-driven learning by:

- guiding the development of the corrective feedback tools and platform fine-tuning. For example, a common fossilized error which has emerged in the data is the lack of the lenition triggering following the possessive pronoun *mo* ('my'), as in *mo + cóta* (k o: t̪ a) → *mo chóta* (x o: t̪ a) ('my + coat'). The pooled data provides an objective metric for selecting the items that might be prioritized for inclusion at a particular level
- providing information for the teacher/learner on the level attained for a specific targeted linguistic feature – for example, the correct use of the conditional mood, as would be appropriate for CEFR Level B1

- providing personalised intelligent feedback, ensuring for example that
 - only a certain number of corrective tools are activated at a time so as to avoid cognitive overload. Although as our next step we are planning the incorporation of 10 corrective items (selected on the basis of the learner data), these would not be deployed together for a given individual, but rather, would appear in a graded sequence, e.g. a maximum of three at a time (and perhaps less) as appropriate to the learner's level. This focuses the learner's attention on the specific items being targeted
 - the content is not too difficult for learner's level, to ensure student motivation is maintained
 - the form of feedback provided is appropriate to the age-group and delivered in a maximally 'fun' way, e.g. a pop-up character who would casually interrupt to nudge the learner towards the target
 - the program detects when a linguistic feature is successfully mastered so the system deactivates it and moves to the next level of difficulty. This is important both to maintain the rate of progress and to maintain student motivation. It is planned to introduce a reward system for when a particular skill or grammatical form has been mastered
 - providing detailed (pooled, quantitative) data on the learning process. The acquisition stages are, as yet, uncharted for Irish, and over time, this database will help contribute towards the elaboration of the acquisition process

Linking Learner Profile Data to Acquisition

The *learner profile data* can be used for a variety of purposes. In the first instance it is used to establish the baseline learner-level. It further enables the establishment of correlations between social/linguistic background and task performance, e.g. how does a 14-year-old male in an Irish immersion school perform relative to the group average and to what extent does the home linguistic environment contribute to determining the level?

The Data: Information/Content, what can be 'open'?

The platform itself will be made openly available to the public. This means that anyone can register and use the platform and that individual learner logs will be accessible to the content creators and to their teachers.

The learner data is of a personal nature and cannot, for ethical reasons, be shared publicly in its raw form. However, the extracted and pooled data on learner errors is devoid of personal content and can readily be shared. Likewise, the data charting the acquisition process, and the information matching specific acquisition/error rates to proficiency levels will be publicly accessible, contributing to the broader benchmarking of learner levels. It is also intended that the learner data will be reused to inform the content of other educational learning platforms which are under development.

The learner profile data is also personal and, as such, cannot be shared. However, here again, the trends that are gleaned from it will be put in the public domain.

References

Moseley, C. (Ed.). (2010). *Atlas of the world's languages in danger* (3rd ed.). Paris: UNESCO Publishing. Retrieved from <http://www.unesco.org/culture/en/endangeredlanguages/atlas>

Ní Chasaide, A., Ní Chiaráin, N., Wendler, C., Berthelsen, H., Murphy, A. and Gobl, C. (2017). The ABAIR Initiative: Bringing Spoken Irish into the Digital Space. In *Interspeech 2017* (pp. 2113-2117). Stockholm, Sweden.

Anna Nicolaou & Ana Sevilla-Pavón

Cyprus University of Technology, Limassol, Cyprus
Universitat de València, Valencia, Spain

anna.nicolaou@cut.ac.cy - Ana.M.Sevilla@uv.es

Expanding a telecollaborative project through social entrepreneurship

Bio data



Anna Nicolaou is an English Language Instructor at the Cyprus University of Technology. She is a PhD Candidate at the School of Linguistics, Speech and Communication Sciences at Trinity College Dublin. Her research interests include Intercultural Education, Online Intercultural Exchanges, Multilingualism, CALL, and 21st Century Learning. She has participated in various research projects (LUCIDE, TextLink) and she has published journal articles and book chapters.



Ana Sevilla Pavón (PhD in Applied Linguistics) is Assistant Professor at the University of Valencia and researcher at IULMA, SILVA and TALIS, as well as coordinator of the iTECLA research project. She has participated in numerous international projects and conferences, and published journal articles (*Iberica*, *Revista de Educación a Distancia*, and *European Journal of Open and Distance Learning*, among others), books and book chapters (Cambridge Scholars, Springer, De Gruyter, Equinox).

Abstract

This paper focuses on the Youth Entrepreneurship for Society (YES) telecollaboration project. The project was an attempt to augment ESP learning by liaising university students at two distant universities and involving Non-Government Organisations in the two participating countries, Spain and Cyprus. The YES telecollaboration project aimed to connect the classroom with the outside world and to foster students' 21st century skills: linguistic and intercultural, global citizenship, digital, teamwork, problem-solving and creativity, while promoting equality, social justice and awareness. Participants at both institutions employed a data-driven, problem-based approach in order to analyse the current social challenges faced by the different organisations. Possible solutions to those challenges were developed and presented through self-created content which was subsequently shared within the telecollaborative context and the respective organisations. This paper will discuss the students' views about the creation and sharing of open-access content, as well as the NGO representatives' opinions pertaining to the usability of the informative data received by the students.

Conference paper

Introduction

This paper stems from ongoing research work conducted for the past three years within a telecollaboration project designed for English for Specific Purposes (ESP) learning. "Telecollaboration refers to the use of online communication tools to connect language learners in different countries for the development of collaborative project work and

intercultural exchange" (O' Dowd, 2007). Three consecutive iterations of the telecollaboration have been completed every year over the course of one semester each, following a Design-Based Research approach. Design-based research is an emerging paradigm for the study of learning in context through the systematic design and study of instructional strategies and tools. Under such methodology, research is carried out in iterative cycles of design, enactment, reflection, refinement, and redesign (Brown, 1992; Collins, 1992). All three aforementioned iterations proposed educational interventions via the implementation of telecollaboration projects which connected students at two distinct universities. The interventions aimed at investigating the affordable opportunities of technology-based projects to develop tertiary education students' intercultural communicative competence embedded in ESP language learning. Among the pedagogical goals of the project were to develop students' 21st century competences (Partnership for 21st Century Skills, 2009): cultural awareness, communication, digital skills, problem-solving, teamwork, active citizenship and creativity, as well as to innovate and enrich the ESP curriculum and enhance students' motivation to learn English at tertiary level. Each iterative cycle was analysed and led to subsequent improved versions of the exchange, culminating with the Youth Entrepreneurship for Society (YES) telecollaboration project which was completed in December 2017. The YES project, which is the focus of the present paper, was implemented in the third iterative cycle and was an attempt to expand telecollaborative ESP learning by connecting dispersed, culturally diverse students at two universities, Cyprus University of Technology (CUT) and Universitat de València (UV) as well as by involving local Non-Government Organisations (NGOs) based in the two participating countries, Spain and Cyprus.

The YES telecollaboration project was a pedagogical intervention which was implemented with an ecological perspective on learning thus offering multiple opportunities for interaction and co-creation of knowledge within a dynamic real-life context (Palalas & Anderson, 2013). The project aimed to link the classroom with the local community and to foster students' critical 21st century skills while promoting equality, social justice and awareness about the different social issues dealt with at both contexts. The project's goals were aligned with the United Nations' Sustainable Development Goals (2015). These belong to the 2030 Agenda for Sustainable Development, and comprise a set of 17 "Global Goals" (UNESCO, 2005), such as "No poverty", "Zero hunger", "Good health and well-being", and "Quality education" among others. The project thus fostered critical attitudes and values while encouraging participants to become active "change champions" as they were required to create open-ended, authentic, and self-authored content addressing those goals. Thanks to the collaboration with representatives from different local NGOs, students were empowered to promote positive changes beyond the classroom's four walls through the production of co-authored digital artefacts in response to the challenges identified by them with the guidance of NGO representatives. A data-driven, problem-based approach informed the exploration and analysis of the current social challenges faced by the different organisations, and possible solutions were presented in the form of digital stories. In this way, the affordances of technology-based projects were explored in an effort to promote social inclusion and tackle problems of discrimination, marginalization, and inequality by means of co-authoring targeted, useful and shareable digital content.

Context and Learning

The YES project was specifically designed for tertiary education students of Business and other related disciplines and was implemented within the framework of a telecollaboration exchange between university students of Business Communication in Spain and Cyprus. The project was designed with a view to using digital technologies for public engagement while enabling learners to be active producers of quality artefacts that allow for open accessibility and (re)usability. Learning within the YES project was personalised according to the participants' interests and preferences and a problem-based approach, which was informed by data-driven learning, was followed in the completion of the different tasks. The term Data-driven learning (DDL) was first coined by Johns in 1991 to illustrate "how language learners could become language detectives to explore language data themselves" (Boulton,

2012). DDL places emphasis on the role of learners and promotes active discovery and learner autonomy (Talai & Fotovatnia, 2012). Within the YES project, participants focused on the exploration of authentic materials, i.e. email exchanges, websites, social media sites, and interviews, among others, in order to discover gaps in the market and then create innovative business solutions to fill those gaps following problem-solving techniques. Tasks within the YES project revolved around social entrepreneurship and innovation and required the active use and exploration of various tools, such as digital collaborative writing tools, online community spaces, and multimedia software, rather than traditional learnerware, i.e. books or handouts. Participants worked in groups of four and chose from a total of twenty-two NGOs. The goal was to address the NGOs' social challenges by means of proposing innovative business solutions grounded by a solid social entrepreneurship framework. Learning was student-centred and tailor-made since students could choose from a wide range of topics and challenges connected to the local NGOs, such as animal protection, migration issues, children's well-being, poverty and marginalization.

The assigned tasks of the project included visiting the NGOs' headquarters to interview representatives from the different organisations so as to gather data about their missions, their social work, and the main challenges they face. Upon completion of the interviews, students discussed and analysed the data gathered in their telecollaboration groups so as to identify and compare the challenges found in their respective local contexts. This process of discussion and exchange of ideas, which took place in email exchanges as well as in discussions on the telecollaboration online community, led to proposing collaborative solutions and initiatives and receiving feedback from the different organisations. Subsequently, the proposed solutions were presented as innovative products, services or applications which aimed at helping those associations deal with the different social challenges. The solutions, which were grounded in the basic principles of social entrepreneurship and supported by relevant concepts and lexis comprising the specific ESP curricula at both universities, took up the form of digital stories. Eighteen unique, original stories were created, presenting an innovative business idea addressing a specific challenge faced by an NGO. The stories were creative and met the guidelines students were asked to follow regarding their digital stories' duration and main elements. These digital stories were then uploaded on the Google+ Community, a common virtual space which served as the shared telecollaborative locus accessed by all students. Subsequently, the self-created digital content, which was the outcome of the students' telecollaborative encounters and interactions with the local NGOs, was shared with the respective NGOs, thus becoming informative open data which were useful to them. Through their creative artefacts, students proposed changes and innovative solutions in an effort to tackle specific problems of discrimination, marginalization, inequality and poverty. In this way, the 17 United Nations' Sustainable Development Goals were addressed. This paper will discuss the students' views about their participation in the telecollaboration project and the creation and sharing of open-access content and how this contributed to the development of various competences and the enhancement of content learning and motivation. The paper will also discuss the NGO representatives' opinions pertaining to the usability of the informative data received by the students.

Methodology

A mixed methods approach was adopted in order to explore the students' perceptions pertaining to the development of various skills and competences through their participation in the telecollaboration project as well as through the creation and sharing of open-access content. Similarly, the NGO representatives' views with regard to their involvement in the YES project and the usability of the informative data afforded to them were investigated. Both quantitative and qualitative data were collected. Quantitative data were gathered by means of opinion questionnaires administered to students upon completion of the YES project. These data were analyzed and processed using the SPSS statistical software. Qualitative data were collected through reflection papers composed by student participants during the project's evaluation phase. In addition, qualitative data were gathered through interviews with NGO representatives who were requested to evaluate the YES project and

discuss the usability of the open-access content shared with them. Qualitative data were analyzed using the NVivo software. Finally, the students' self-authored artefacts (22 digital stories) were analyzed in terms of content in order to identify the extent to which the participants managed to address both the current social challenges brought in by the different NGOs and the UN's SDGs.

A total of sixty-three students and twenty-two NGOs participated in the YES telecollaboration project. Upon completion of the exchange, questionnaires were administered online via Google Forms to student participants. Out of the sixty-three students who participated in the project, fifty-five students ($N=55$) - thirty-three ($N=33$) from the Cypriot university and twenty-two ($N=22$) from the Spanish university - completed the questionnaires and composed final reflection essays. The questionnaires aimed at exploring the students' perceptions regarding the YES telecollaboration project in general and the collaborative creation and sharing of the digital stories in particular. Meanwhile, the goal of the final reflection papers was to allow students to evaluate the various aspects of the telecollaboration project. Furthermore, out of the twenty-two NGOs who were involved in the YES project, eleven organisations ($N=11$) - six from Spain and five from Cyprus - participated in the final evaluation phase by means of providing feedback regarding their involvement in the project and the self-created, informative content provided by the students.

Results and Discussion

The analysis of quantitative and qualitative data indicates that the YES telecollaboration project was positively received by all participants: the students at the two universities and the local communities involved. Students' responses to the questionnaires as well as their comments in their written reflections point to positive results in the areas of motivation, the development of digital skills, and the enhancement of content learning, intercultural awareness and active citizenship. Similarly, the NGO representatives' responses to the interviews indicate that the digital artefacts which became available to them as open-access content were considered informative and useful to the organizations themselves as well as to any interested parties in the local communities.

Four 1-7 Likert-type questions whereby 1 meant 'Not at all' and 7 meant 'Too much' were included in the questionnaires among other questions. These questions aimed to explore the students' perceptions about the creation of the digital stories as part of the YES project and how this had contributed to the enhancement of motivation as well as the development of various skills. The students' responses to the first question '*How motivating has digital storytelling activity been for you?*' point to the students' satisfactory motivation levels during the creation of audiovisual content as the mean score was 4.62. Similarly, their responses to the second question '*How effective has this activity been in developing various skills?*' indicate significant learning of different competences through the creation of digital stories as the mean score was 4.87. However, it is interesting to note that the students reported increased levels of anxiety during the development of the digital stories in their responses to the question '*How anxious has this activity made you feel?*' in which the mean score was 4.31.

Overall, despite the high levels of anxiety, which were due to the perceived high degree of complexity of the specific activity and the multimodal work it involved, students reported having enjoyed the process of creating useful audiovisual content within the YES telecollaboration project. This is shown in their responses to the question '*Have you enjoyed creating a digital story more than doing traditional activities?*' in which the mean score was 4.93. Figure 1 summarizes the students' overall positive perspectives regarding the creation of digital artefacts as well as their increased anxiety levels which, as mentioned earlier, can be attributed to the complexity of the specific task:

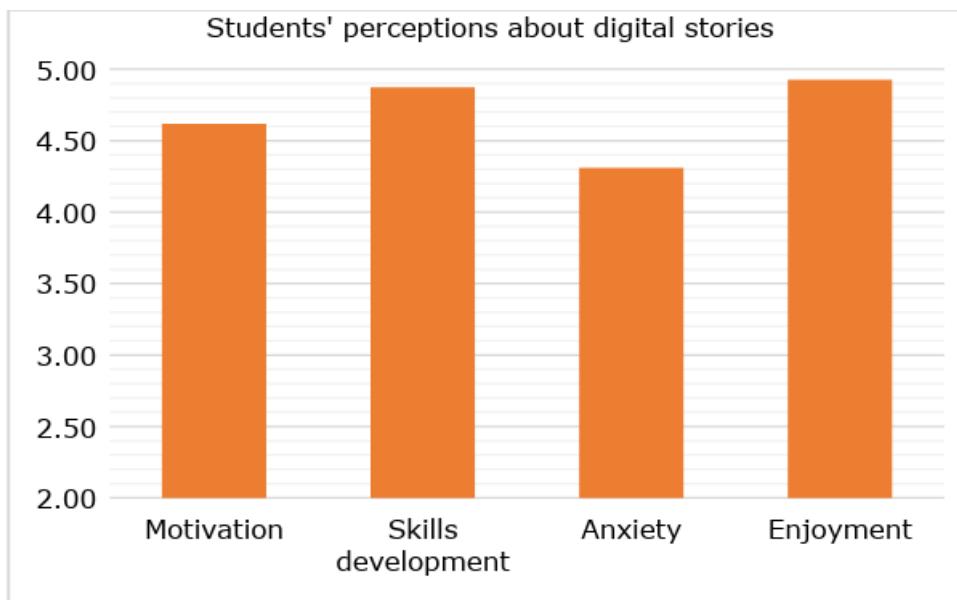


Figure 1: Students' perceptions about digital artefact creation

The qualitative analysis of the students' final written reflections provides insights as to the type of competences that were developed through their participation in the YES telecollaboration project. These include digital literacy, intercultural communicative competence, discipline-specific language learning and entrepreneurial skills, as well as active citizenship, teamwork and creativity. A Cypriot CUT female student summarizes the various skills acquired through the YES project in the following comment:

"In the whole project I have used a lot of technology tools like Facebook and Skype. Besides that, I've used some new technology tools like Google Hangouts, Google+, Gmail, Drive and Moviemaker. I think that the YES (Social Entrepreneurship project) was a good start for the first semester at the university as future entrepreneurs. It has made us more creative, it improved our research skills, team working skills and the most important, the project made us feel and think as entrepreneurs for the first time in our life."

The YES telecollaboration project was designed with a view to creating a learning habitat that would be rich in affordances which would be perceptible by students. The analysis of the qualitative data indicates that many of the affordances of this technology-mediated project were acknowledged by students and most were acted upon. Such emerging affordances include an enhancement of students' motivation to learn English as thanks to the project they were able to realise "*how extremely useful the English language is in an international context*", as noted by a Spanish UV female student. Moreover, the project contributed to the students' development of intercultural communicative competence, as pointed out by the following comment from an Austrian UV female student:

"The best things about the project are seeing the world with different eyes and increasing our level of understanding, communicating with people from another country, learning something new e.g. how to make a video, and trying to be more creative."

Through the YES project, students also acquired discipline-specific linguistic knowledge in a very creative way. They highly valued being able to learn the principles of entrepreneurship and social entrepreneurship through their involvement in a real (not realistic) problem-solving activity. Two Cypriot CUT female students highlighted how the project had helped them improve their English while learning about how to become social entrepreneurs in a creative way:

"The YES project has been an opportunity for all of us to practice our English skills and writing skills, as well as to learn how to communicate our ideas."

"The social entrepreneurship was the most creative part ...also getting to think and develop out a new innovative idea got us into the game of business for real, showing us the path for actually being an entrepreneur.

The fact that this project involved receiving guidance and feedback from local NGOs made the project more meaningful and engaging. This was mainly due to the students' awareness that their self-created content was targeted to a real-life audience and had the potential to be useful in tackling real-world social challenges. This made participants feel that through their involvement in the project they were empowered to assume an active double role of responsible citizens and promoters of social change. The following comment from a Cypriot CUT male student points out the significance attributed to both the collaboration with local NGOs and the resulting possibility to address or even solve different social challenges:

"We are both (CUT and UV students) excited about the NGO's project because the members of the organization were very friendly with us and helpful. We helped them because they were trying to solve some of the existing problems and they were struggling for it." Cypriot CUT male student

Overall, the students seem to have benefited to a great extent from the YES project and the creation of meaningful digital content which was co-produced within their local university context and in close collaboration with their international, online partners. What seems to have motivated students is the fact that their self-created stories became useful, informative data targeted for a real-life context.

The analysis of the students' digital artefacts demonstrates the significant extent to which the current social challenges brought in by the NGOs were addressed by the participants in the YES telecollaboration project. The twenty-two digital stories presented innovative business solutions in the form of new products, services or apps and were targeted to specific social challenges identified by the students with the guidance of representatives from the respective 22 NGOs. The solutions were demonstrated in creative ways, through the co-authoring of inspired authentic scripts and through the use of various multimedia resources. The analysis of the content of the digital stories indicates that each artefact addressed at least one of the 17 United Nations' Sustainable Development Goals. Specifically, four digital stories addressed Goal 1: "No poverty", one story addressed Goal 2: "No hunger", two stories revolved around issues described in Goal 3: "Good health and well-being", and six stories responded to Goal 4: "Quality education". Similarly, one story addressed Goal 6: "Clean water and sanitation", and two stories centred on Goal 7: "Affordable and clean energy". Seemingly, three stories addressed Goal 9: "Industry, innovation, infrastructure", seven stories were aligned with Goal 10: "Reduced inequalities", and three stories focused on Goal 11: "Sustainable cities and communities". Finally, one story addressed Goal 14: "Life below water", four stories were directed towards Goal 15: "Life on land", and three stories addressed Goal 16: "Peace, justice and strong institutions".

The qualitative analysis of the NGO representatives' interviews indicates that the original co-authored content which was tailored to each organization's specific needs was positively received and was perceived as useful, informative, shareable data. Many of the organisations that were involved in the YES project requested permission to share the digital stories on their social media platforms and websites as they found them quite informative and honoring to their organisations. An NGO representative notes:

"We would like to promote it on Facebook and our website as a life experience that honors us within the Foundation's 10 years of existence." Cypriot NGO dealing with autistic children

Another NGO representative comments on the usability potential and the informative aspect of the self-made content afforded to them:

"The video is very useful for informing the public about the operation of the shelter, its use, but especially for the promotion of the adoption of animals." Cypriot NGO dealing with the adoption of stray dogs.

Finally, the YES project was perceived by the NGO representatives as an opportunity to promote the goals of each organisation. A representative comments:

"What we've liked the most about the project is to be in touch with young people who can help promote our social work within the university." Spanish NGO dealing with the cooperation for development and the promotion of reading.

Overall, both the students' and NGO representatives' views on the YES project indicate that the project accomplished its goals to a great extent by developing students' critical 21st competences and by affording useful, open-access data to the local communities.

Concluding Remarks

The YES telecollaboration project opened the way to new, engaging opportunities for ubiquitous learning through the process of collaborative inquiry, communication, exchange of ideas, problem solving, creative content creation, and generation of informative, accessible, open data which were useful to both the students and the society. The technological mediation, which is at the core of every telecollaboration project, was optimized in the YES project throughout all its phases and in different respects. The YES project was an attempt to expand the telecollaborative context beyond the two partner classrooms by involving local communities and by encouraging the co-creation of meaningful and useful content. In this way, language learning was mediated by resources which were "actively brought in, created, shared and used" (Van Lier, 2006). Learners were significantly engaged in their learning process from the initial stage of discovery through the final phase of sharing open data in a real context. This led to the development of multiple competences as "the more active learners are in the learning process, the more likely they are to learn" (Darhower, 2008).

References

- Boulton, A. (2012). What Data for Data-Driven Learning?. European Association for Computer-Assisted Language Learning (EUROCALL).
- Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *The journal of the learning sciences*, 2(2), 141-178.
- Collins, A. (1992). Towards a Design Science in Education in E. Scanlon & T. O'Shea (eds) *New Directions in Educational Technology*.
- Darhower, M. A. (2008). The role of linguistic affordances in telecollaborative chat. *Calico Journal*, 26(1), 48-69.
- O'Dowd, R. (2007). Evaluating the outcomes of online intercultural exchange. *ELT journal*, 61(2), 144-152.
- Palalas, A., & Anderson, T. (2013). Educational design research: Designing mobile learning interventions for language learners. *Educational design research: Part B, illustrative cases*. Enschede, SLO, 967-990.

Partnership for 21st Century Skills (2009). P21's Framework for 21st Century Learning. Retrieved from: <http://www.p21.org/about-us/p21-framework>.

Talai, T., & Fotovatnia, Z. (2012). Data-driven Learning: A student-centered technique for language learning. *Theory and Practice in Language Studies*, 2(7), 1526.

United Nations - Sustainable Development knowledge platform (2015). Transforming our World: The 2030 Agenda for Sustainable Development. Available at: <https://sustainabledevelopment.un.org/post2015/transformingourworld/publication>

Van Lier, L. (2006). The ecology and semiotics of language learning: A sociocultural perspective (Vol. 3). Springer Science & Business Media.

Carlos Ordoñana, Pascual Pérez-Paredes & Pilar Aguado

Universidad de Murcia, Murcia, Spain

Carlos.ordonana@um.es

Language teachers' perceptions on the use of OER NLPTs

Bio data



Carlos Ordonana Guillamón is a PhD student and part-time associate professor at the University of Murcia. His main research interests are the use of corpora in language education, computer-assisted language learning and mobile-assisted language learning. He has published research in journals such as Computer Assisted Language Learning.



Pascual Pérez-Paredes is a Lecturer in Research in SLE at the Faculty of Education, University of Cambridge. His main research interests are learner language variation, the use of corpora in language education and corpus-assisted discourse analysis. He has published research in journals such as CALL, Language, Learning & Technology, System, ReCALL, Discourse & Society and the International Journal of Corpus Linguistics.



Pilar Aguado is a tenured lecturer in the English Department at the University of Murcia. Her works have been published in RESLA, META, CALL, System, The ESPpecialist, Across Languages and Cultures, Journal of English Studies, and John Benjamins, among others. Her main current areas of research are teaching English as a foreign language, translation, materials design, corpora and ESP.

Abstract

Combining the ubiquity and constant connectivity that characterize mobile devices (MD) with innovative approaches such as Data-Driven Learning (DDL), Natural Language Processing Technologies (NLPTs) as Open Educational Resources (OERs) could become a powerful tool for language learning as they promote individual and personalized learning. This research is based on the study by Pérez-Paredes, Ordoñana & Aguado (2018), in which a questionnaire that was answered by language educators from the UK and Spain ($n= 230$) explored the extent to which OER NLPTs are currently known and used in the context of adult foreign language learning. The results suggested that teachers' familiarity and use of OER NLPTs are very low. The current study uses the whole dataset collected ($n=690$), which included subjects from all across the EU, to increase the power of the study and the reliability of the results, to further analyze the factors that influence the familiarity and frequency of use of OERs. The results suggest that frequency of use of MD and familiarity with OERs are the main predictors of the frequency of use of OERs, whereas training in MD, perception of computer skills and institution's promotion of the use of MD are important factors for the teachers' familiarity with OERs.

Conference paper

Introduction

During the twenty-first century there has been an important rise in sales and use of mobile devices (MD) (Chen & Denoyelles, 2013; Chen, Yen, & Chen, 2009) as they provide constant Internet connectivity and ubiquity to users (Naismith, 2004; Shin et al., 2011). Such features allow for users to be provided with a wide variety of multi-media content, among which free, quality learning materials can be found (Page, 2014) in the form of Open Educational Resources (OERs). The possibilities of integrating OERs and MD into an educational context have been widely acknowledged within the academic milieu. As a result, the field of Mobile Assisted Language Learning (MALL) has increased greatly in activity and popularity in recent years.

Many studies have focused on how these resources can improve the efficiency of language teaching and learning. However, a generalized lack of use has been pointed out within the EU as compared to other countries, such as the US or Brazil (Sabadie, Muñoz, Punie, Redecker, & Vuorikari, 2014), and more recent studies (Pérez-Paredes, Ordoñana, & Aguado, 2018) suggest that the number of OER users is still limited. This increases the difficulty in assessing the true impact of such resources in the field of language learning and teaching. There is, thus, a need to increase the frequency of use of OERs in MD while further research is carried out in their efficiency and viability.

Literature Review

OERs are digital learning materials that can be accessed, replicated modified and used freely under an open license (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2012). OERs have been found to be greatly beneficial for teachers and learners alike, as they support learning and teaching practices (Bradshaw, Younie & Jones, 2013). Several studies have found that OERs could decrease the time spent in preparing lessons and prevent teacher isolation through the sharing of educational materials; OERs also promote the search for innovative solutions when preparing classes, thus expanding teachers' roles and encouraging reflective practice; finally, using OERs reduces the cost of educational materials for students and teachers (Bliss, Robinson, Hilton, & Wiley, 2013; Farrow et al., 2015; Petrides, Jimes, Middleton-Detzner, & Howell, 2010; Wenk, 2010; Wiley, Hilton, Ellington, & Hall, 2012). Such benefits have been noticed by the European Union, which has increased its efforts on promoting OER use (Sabadie et al., 2014).

However, OERs are not limited to learning materials such as textbooks, syllabi or multi-media content. Some Natural Language Processing tools share OER characteristics such as being able to use, modify and re-share at no cost. Such resources can be repurposed for pedagogical means (Thomas & Evans, 2014). This opens a way for Data Driven Learning (DDL) approaches to directly impact the learners' performance. DDL can be described as an inductive approach that makes use of the learner's own linguistic production rather than a teacher-mediated discourse as the main source of teaching (Karras, 2016; Talai & Fotovatnia, 2012). Recent studies have highlighted the positive effects of using DDL in language learning (Ballance, 2017; Charles, 2012, 2014; Chujo & Oghigan, 2012; Conroy, 2010; Karras, 2016). Thus, "given the potential identified in DDL and its accessibility to learners via computers, studies focusing on using language processing technologies and DDL are needed so as to gain a better understanding of how DDL could be implemented in MALL" (Pérez-Paredes et al., 2018; p.5)

Pérez-Paredes et al. (2018) conducted a study on language educators' (n=230) familiarity and use of OER NLPTs, in which a questionnaire was devised with the intent of analyzing their perception on the use of such resources. They concluded that OER use was linked to OER familiarity, both of which were visibly low, and that there was a widespread lack of training for teachers in the use of OERs and MD, thus stressing the need for further efforts in dissemination strategies. Furthermore, the results showed that the most known OER

NLPTs were *Online Dictionaries*, *Collocation Dictionaries* and *Spell Checkers*, which are also the ones the subjects claimed to know better. It was also shown that interest and attitude towards OERs was widely positive among teachers.

This work will use the data collected in Pérez-Paredes et al. (2018) in order to further analyze the main predictors of the familiarity with and use of OERs for language teaching. This extension of the analysis allows for the characterization of the functional relationship between a group of predictor variables and the selected outcomes as well as the role of the different predictors in multivariate models. In addition, as they limited their sample to subjects from Spain and the UK ($n=230$), this study will make use of the full extent of the data collected ($n=690$), to increase the power of the study and the reliability of the results. Two main research questions will be dealt with in this sense:

- (1) Which factors are the best predictors of the frequency of use of OERs among teachers?
- (2) Which factors are the best predictors of the familiarity with OERs among teachers?

To do so, the results of logistic and linear regression analyses over the variables *being familiar with OERs* and *frequency of use of OERs in language teaching* are presented.

Materials and method

A survey was distributed among Second and Foreign Language teachers across Europe through social media and email lists. This survey was designed within the framework of the European-funded project TELL-OP. The dissemination strategy included contacting with Language Schools and Language Academies, Teachers' Unions and Universities. Six-hundred and ninety subjects from all across Europe provided valid data for analysis.

The online survey was developed ad hoc for this study, based on standard guidelines for questionnaire creation as a multinational and multilingual survey (de Leeuw, Hox & Dillman, 2008; Harkness, 2008). It comprised 60 items with different response format (yes/no, Likert-type anchored 1 to 5, and open questions). They were grouped into 21 questions and divided into three separate sections: Block A dealt with subject demographics, including gender, age, or experience in the classroom among others; Block B dealt with questions related to the usage of MD, while Block C addressed the interest, familiarity and frequency of use of language-related OERs in the classroom. The last part of the questionnaire was restricted to those informants who reported to be familiar with OERs ($n = 378$). The *degree of familiarity* with and *frequency of use* of different OERs were assessed by means of two scales included in this last part of the questionnaire. Both scales showed adequate reliability (*degree of familiarity*: $\alpha = .899$; *frequency of OER use*: $\alpha = .898$).

Two variables have been considered as outcomes for the analyses: *being familiar* with OERs (dichotomous: yes/no) and *frequency of use* of OERs (continuous: scale). Because of non-normality, *frequency of use* was transformed using a rankit procedure previous to analyses (Solomon & Sawilowsky, 2009). Univariate logistic/linear regression analyses were first conducted to assess the association between each predictor variable with the outcomes. Variables which showed significant associations in the univariate analyses were entered in a multivariate logistic/linear regression model to determine which of them presented the most relevant contribution to outcome prediction. Analyses for *being familiar* with OERs were conducted for the whole sample ($n=690$), while *frequency of OER use* analyses used the restricted subsample of participants reporting to be familiar with OERs ($n=378$). All statistical analyses were performed with SPSS 22.0 for Windows (SPSS; Chicago, IL).

Results

Familiarity with OERs

Table 1 summarizes the association of predictor variables with the outcome *being familiar with OERs*. Univariate analyses showed significant positive associations with age,

qualification, specific training backgrounds (applied linguistics, education or linguistics), training in use of MD, perception of self-computer skills, use of devices in L2 teaching (smartphones, online platforms or computer labs), and perception on the frequency of use of MD by students. Additionally, years of experience and working in a secondary education institution showed a negative association with *being familiar with OERs*.

A number of variables survived in the multivariate analysis such as advanced age, holding training backgrounds in linguistics, less years of experience, not working on a secondary school, having received training in the use of mobile device, higher levels of computer skills, and use of online platforms. They were associated to a greater probability of declaring him/herself as being familiar with OERs. As a whole, the model including the mentioned predictors would explain 22% of the observed variance in the dependent variable.

	UNIVARIATE ANALYSES			MULTIVARIATE ANALYSIS		
	OR	CI 95%	P	OR	CI 95%	P
Gender	1.054	.743, 1.497	.767			
Age	1.410	1.098, 1.809	.007	1.492	1.150, 1.934	.003
Qualification	1.857	1.472, 2.343	.000			
<i>Training Background</i>						
Applied Linguistics	2.279	1.512, 3.436	.000	1.790	1.120, 2.861	.015
Education	1.447	1.049, 1.996	.024			
Linguistics	1.753	1.135, 2.709	.011	1.758	1.090, 2.837	.021
Modern Languages	.749	.548, 1.023	.069			
Language and Literature	1.253	.894, 1.757	.191			
Years of Experience	.823	.712, .952	.009	.831	.713, .969	.018
<i>Working Institution</i>						
Higher Education	1.278	.818, 1.994	.281			
Vocational Training	1.283	.560, 2.937	.555			
Adult Education	1.100	.679, 1.780	.699			
Secondary School	.353	.219, .569	.000	.499	.330, .755	.001
Primary School	.378	.378, 1.369	.315			
Access to WiFi	1.120	.774, 1.622	.548			
Institution fosters MD	.724	.516, 1.1014	.060			
MD training	2.131	1.449, 3.134	.000	1.804	1.195, 2.723	.005
Perception of computer skills	1.718	1.423, 2.075	.000	1.441	1.150, 1.805	.001
<i>Use of devices in L2 teaching</i>						
Tablet	1.003	.681, 1.479	.986			
Smartphone	1.697	1.173, 2.455	.005			
Web	.991	.709, 1.383	.956			
Online platforms	2.417	1.736, 3.363	.000	1.592	1.095, 2.314	.015
Computer lab at school	1.414	1.029, 1.943	.033			
Frequency of MD use	1.012	.899, 1.139	.841			
Frequency of students using M	1.297	1.142, 1.473	.000			

Table 1: Univariate and multivariate logistic regression analyses for *being familiar with OERs*
OR: Odds Ratio; CI: Confidence Interval

Frequency of OER use

The results of the linear regression that analyzes factors associated to the *frequency of OER use* in language teaching appear in Table 2. In this case, qualification, a training background in applied linguistics, working on a HE institution or a primary school, with access to WiFi, having received training on MD use, perception of computer skills, use of devices in L2 teaching, frequency of MD use, and degree of familiarity with OERs, were positively associated to the *frequency of OER use*. Only age and a training background in modern languages associated negatively with the outcome. However, the majority of them did not survive in the multivariate analysis, and just two variables, namely frequency of MD use and

degree of familiarity with OERs remained significant, explaining 60% of the observed variance in *frequency of OER use*.

	UNIVARIATE ANALYSES			MULTIVARIATE ANALYSIS		
	B	CI 95%	P	B	CI 95%	P
Gender	.109	-.718, .168	.331			
Age	-.165	-.111, .329	.041			
Qualification	.174	-.323, -.007	.018			
<i>Training Background</i>						
Applied Linguistics	.268	.138, .398	.000			
Education	.041	-.075, .157	.490			
Linguistics	-.020	-.159, .119	.777			
Modern Languages	-.209	-.325, .093	.000			
Language and Literature	-.059	-.179, .062	.340			
Years of Experience	.102	.010, .194	.031			
<i>Working Institution</i>						
Higher Education	.243	.075, .410	.005			
Vocational Training	-.037	-.338, .264	.809			
Adult Education	-.151	-.331, .029	.100			
Secondary School	.029	-.162, .220	.764			
Primary School	.332	.075, .588	.011			
Access to WiFi	.259	.118, .400	.000			
Institution fosters MD	.023	-.103, .149	.717			
MD training	.214	.083, .346	.001			
Perception of computer skills	.140	.067, .214	.000			
<i>Use of devices in L2 teaching</i>						
Tablet	.130	-.006, .265	.061			
Smartphone	.134	.008, .259	.037			
Web	.239	.114, .364	.000			
Online platforms	.146	.017, .275	.026			
Computer lab at school	.094	-.019, .206	.103			
Frequency of MD use	.115	.072, .158	.000	.048	.020, .076	.001
Frequency of students using MD	.010	-.037, .058	.669			
Familiarity score	.699	.638, .760	.000	.684	.615, .754	.000

Table 2: Univariate and multivariate linear regression analyses for *frequency of OER use in language teaching*.

B: Regression coefficient; CI: Confidence Interval

Discussion

The results help shed more light onto the factors that influence the familiarity and use of OERs among foreign language educators. The basic idea pointed out by Pérez-Paredes et al. (2018) was that *frequency of use of OERs* is directly correlated to *familiarity with OERs*. The present analyses extend that idea by suggesting that familiarity with the resources is, by far, the best predictor of the frequency of use, and that other factors appear to be associated to frequency of use mainly indirectly, through familiarity. In a more specific level, this work has looked at the different factors affecting both familiarity and frequency to help improve future dissemination strategies.

The results show two main factors that are significant predictors of the frequency of use of OERs among foreign language educators: a) familiarity with OERs, which supports Pérez-Paredes et al. (2018) claim; b) frequency of use of MD in the context of language teaching. Both together explain the majority (60%) of the variance for frequency of use. However, other factors that initially appear associated to frequency of use, such as qualification,

training background or use of devices in L2 teaching do not show a direct relationship when multivariate analysis is applied.

Regarding the factors associated to *being familiar* with OERs, the results have pointed out that training in MD, perception of computer skills and use of devices (e.g. online platforms) in L2 teaching are among the best predictors of teachers' familiarity with the resources. Although a causal relationship between variables cannot be established with this research design, it seems reasonable to focus on those factors in order to delineate approaches to foster familiarity with OERs. Other related factors, such as age or training background are, however, less amenable to intervention.

Pérez-Paredes et al. (2018) already pointed out a lack of support from institutions in the form of offering training in the use of MD and in the promotion of use of devices in L2 teaching within the classroom. Our results suggest that, apart from the training in the proper use of OERs in the classroom, institutions should increase their efforts in encouraging the use of MD in the context of teaching. Other researchers have also stressed the importance of training for education professionals; a basic knowledge on OERs, MD and their capabilities must be built up in order to spread their usage (Littlejohn & Hood, 2017; Pérez-Paredes et al., 2018; Wild, 2012; Yeung et al., 2011). These results suggest that specialized training should also include how to use MD in the classroom and a focus on increasing computer skills in general.

The literature has shown that OERs contribute in many ways to improving learning and teaching (Bliss et al., 2013; Bradshaw et al., 2013; Farrow et al., 2015; Pérez-Paredes et al., 2018; Sabadie et al., 2014; Wenk, 2010; Wiley et al., 2012), and that, with that in mind, the efforts to spread their use from the EU have increased in recent years (Sabadie et al., 2014). However, such promotion has been clearly not enough, for it has been shown that higher and secondary education institutions do not provide with enough means of information on the use of OERs and MD and that they do not foster enough their use (Pérez-Paredes et al., 2018).

Conclusion

This study was carried out with the intent of analyzing which factors are related to the rate of familiarity and frequency of use of OERs among language educators in order to improve our knowledge of the magnitude and characteristics of such associations and aid in the devising of strategies to spread OER use.

To do so, this paper has tried to answer two main research questions: (1) Which factors are the best predictors of the frequency of use of OERs among teachers? and (2) Which factors are the best predictors of the familiarity with OERs among teachers?

The results suggest that for (1), a model including just frequency of use of MD and familiarity with OERs is capable to explain up to 60% of the variance in OER use; for (2), among the main factors predicting being familiar with OERs, those that are more amenable to intervention, are a) training in MD, b) perception of computer skills and c) use of devices in L2 teaching.

The main strengths of this study are being based on a relatively large sample, including respondents from across different European countries, and providing a multivariate analysis of the functional relationship of different factors associated to familiarity and use of OERs. Its main limitation, on the other hand, is the cross-sectional nature of the data which does not allow for establishing causal relationships between variables. Future longitudinal or intervention studies would be needed to go deeper into this question.

In summary, these results offer useful information for characterizing the relationship between a number of factors and frequency of use of OERs; and provide a reference frame for selection of those factors that, based on their association to the outcome and their

susceptibility to intervention, appear more suitable for intervention programmes. In addition, this study serves as a way of shedding light in the right direction for future studies to fully investigate and determine the benefits of OERs and MD into the field of Language Learning.

References

- Ballance, O. (2017). Pedagogical models of concordance use: Correlations between concordance user preferences. *Computer Assisted Language Learning*, 30, 259–283.
- Bliss, T., Robinson, T., Hilton, J., & Wiley, D. (2013). An OER COUP: College teacher and student perceptions of open educational resources. *Journal of Interactive Media in Education*, 1, 1–25.
- Bradshaw, P., Younie, S., & Jones, S. (2013). Open education resources and higher education academic practice. *Campus-Wide Info Systems*, 30, 186–193.
doi:<https://doi.org/10.1108/10650741311330366>
- Charles, M. (2012). Proper vocabulary and juicy collocations: EAP students evaluate do-it-yourself corpus-building. *English for Specific Purposes*, 31, 93–102.
- Charles, M. (2014). Getting the corpus habit: EAP students' long-term use of personal corpora. *English for Specific Purposes*, 35, 30–40.
- Chen, B., & Denoyelles, A. (2013). Exploring students' mobile learning practices in higher education. *Educause Review*. Retrieved from <http://www.educause.edu/ero/article/exploring-students-mobile-learning-practices-higher-education>
- Chen, J., Yen, D., & Chen, K. (2009). The acceptance and diffusion of the innovative smart phone use: A case study of a delivery service company in logistics. *Information & Management*, 46, 241–248. doi:<https://doi.org/10.1016/j.im.2009.03.001>
- Chujo, K., & Oghighian, K. (2012). DDL for EFL beginners: A report on student gains and views on paper-based concordancing and the role of L1. In J. Thomas & A. Boulton (Eds.), *Input, process and product: Developments in teaching and language corpora* (pp. 170–183). Brno: Masaryk University Press.
- Conroy, M. A. (2010). Internet tools for language learning: University students taking control of their writing. *Australasian Journal of Educational Technology*, 26, 861–882.
- de Leeuw, E. D., Hox, J. J., & Dillman, D. A. (2008). The cornerstones of survey research. In E. D. de Leeuw, J. J. Hox, & D. A. Dillman (Eds.), *International handbook of survey methodology*, (pp. 1–17). Abingdon: Routledge.
doi:<https://doi.org/10.4324/9780203843123.ch1>
- Farrow, R., Pitt, R., de los Arcos, B., Perryman, L., Weller, M., & McAndrew, P. (2015). Impact of OER use on teaching and learning: Data from OER Research Hub (2013–2014). *British Journal of Educational Technology*, 46, 972–976.
doi:<https://doi.org/10.1111/bjet.12310>
- Karras, J. (2016). The effects of data-driven learning upon vocabulary acquisition for secondary international school students in Vietnam. *ReCALL*, 28, 166–186.
doi:[10.1017/S0958344015000154](https://doi.org/10.1017/S0958344015000154)

Littlejohn, A., & Hood, N. (2017). How educators build knowledge and expand their practice: The case of open education resources. *British Journal of Educational Technology*, 48, 2, 499–510. doi: <https://doi.org/10.1111/bjet.12438>

Naismith, L. (2004). Literature review in mobile technologies and learning. Bristol: NESTA Futurelab.

Page, T. (2014). Application-based mobile devices in design education. *IJMLO*, 8, 2, 96–111. doi:<https://doi.org/10.1504/ijmlo.2014.062347>

Pérez-Paredes, P., Ordoñana Guillamón, C., & Aguado Jiménez, P. (2018). Language teachers' perceptions on the use of OER language processing technologies in MALL, *Computer Assisted Language Learning*, DOI: 10.1080/09588221.2017.1418754

Petrides, L., Jimes, C., Middleton-Detzner, C., & Howell, H. (2010, September). OER as a model for enhanced teaching and learning. Open ED 2010 proceedings. Barcelona: UOC, OU, BYU. Retrieved 17 March, 2016, from <http://hdl.handle.net/10609/4995>

Sabadie, J., Muñoz, J., Punie, Y., Redecker, C., & Vuorikari, R. (2014). OER: A European policy perspective. *Journal of Interactive Media in Education*, 2014, 1–12. doi:<https://doi.org/10.5334/2014-05>

Shin, D., Shin, Y., Choo, H., & Beom, K. (2011). Smartphones as smart pedagogical tools: Implications for smartphones as u-learning devices. *Computers in Human Behavior*, 27, 2207–2214. doi:<https://doi.org/10.1016/j.chb.2011.06.017>

Solomon SR, Sawilowsky SS. (2009). Impact of Rank-Based Normalizing Transformations on the Accuracy of Test Scores. *Journal of Modern Applied Statistical Methods*. 8:448–462.

Talai, T., & Fotovatnia, Z. (2012). Data-driven learning: A student-centered technique for language learning. *Theory and Practice in Language Studies*, 2, 1526–1531. Retrieved from <https://search.proquest.com/docview/1346760757?accountid=9851>

Thomas, M., & Evans, M. (2014). Guest editorial. *Computer Assisted Language Learning*, 27, 107–108. doi:<https://doi.org/10.1080/09588221.2014.874101>

United Nations Educational, Scientific and Cultural Organization. (2012). What are open educational resources (OERs)?, Paris: Unesco.org. Retrieved 28 March, 2016, from <http://www.unesco.org/new/en/communication-and-information/access-to-knowledge/open-educational-resources/what-are-open-educational-resources-oers/>

Wenk, B. (2010, April). Open educational resources (OER) inspire teaching and learning. Proceedings of the IEEE EDUCON education engineering 2010 – the future of global learning engineering education (pp. 435–442). Madrid: IEEE.

Wild, J. (2012). OER engagement study: Promoting OER reuse among academics (SCORE Fellowship Final Report). Oxford: University of Oxford and The Open University. Retrieved from <http://www.open.ac.uk/score/files/score/file/Joanna%20Wild%20SCORE%20Fellowship%20Final%20Report%20-%20web%20version.pdf>,

Wiley, D., Hilton, J., Ellington, S., & Hall, T. (2012). A preliminary examination of the cost savings and learning impacts of using open textbooks in middle and high school science classes. *International Review of Research in Open and Distance Learning*, 13, 3, 262–276.

Yeung, A., Taylor, P., Hui, C., Lam-Chiang, A., & Low, E. (2011). Mandatory use of technology in teaching: Who cares and so what? *British Journal of Educational Technology*, 43, 859–870. doi: <https://doi.org/10.1111/j.1467-8535.2011.01253.x>

John Sloan & Julie Carson-Berndsen

University College Dublin, Dublin, Ireland

john.sloan.1@ucdconnect.ie - julie.berndsen@ucd.ie

Expressive Data: a learner corpus with emotion

Bio data



John Sloan is a PhD candidate in the School of Computer Science at University College Dublin under the supervision of Professor Julie Carson-Berndsen. His research is centered on the development and testing of a personalised, e-learning platform for language learners. His background includes teaching ESL and an MA in Linguistics from UCD in 2016.



Julie Carson-Berndsen is a Professor in the UCD School of Computer Science where her research group has developed phonetic-feature based approaches to speech recognition and expressive speech synthesis systems. Her current research focusses on spoken language analytics using data-driven syntagmatic and paradigmatic similarities to approximate native speaker intuitions for non-native learners and virtual agents.

Abstract

This paper presents a novel approach to online language learning based on emotional responses. It gives an overview of the ongoing development and testing of 'Emotional Response Language Education' (ERLE), a personalised e-learning platform where feedback is provided to English language learners through the facial expressions of an animated avatar. The main aim of the ERLE project is to create an engaging, effective learning environment in which language learners can receive instant native speaker feedback on their production. The data gathered will contribute to a novel corpus containing learner sentences, native speaker judgement, emotion, location of error(s) and correction(s). The corpus will later be used to train a Grammatical Error Correction model to allow for semi-automation of the feedback task in real time.

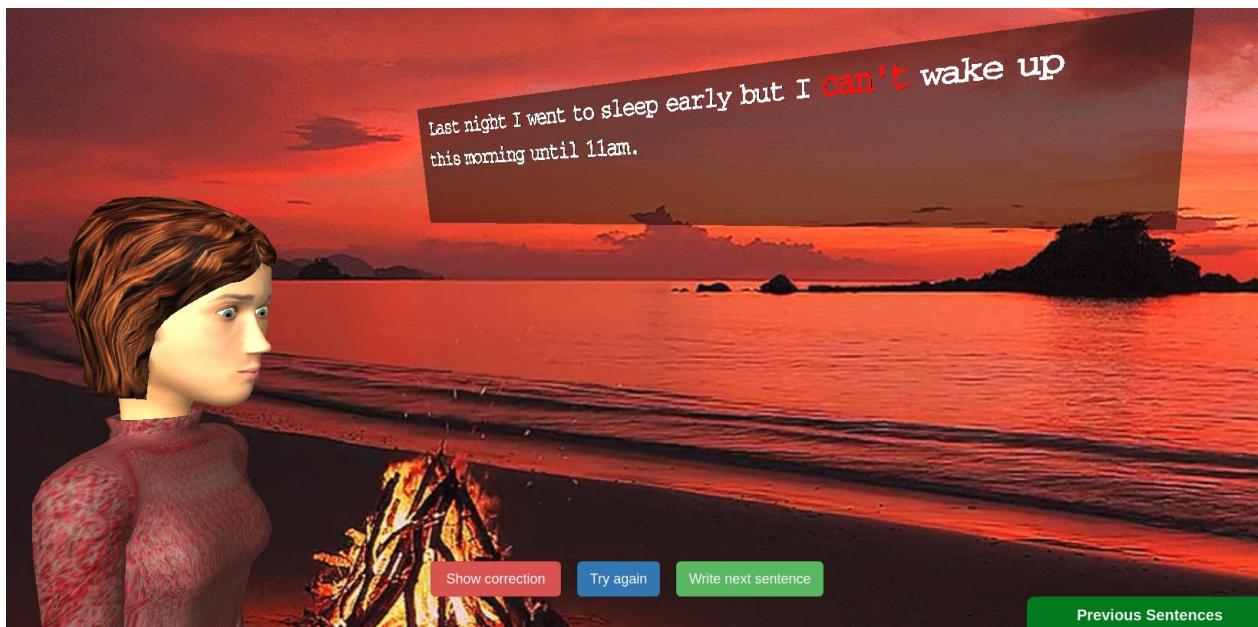


Figure 1: User interface showing response to an ill-formed sentence displayed through the avatar's frown and gaze aversion. Red text highlighting the place of error and buttons offering options (Show correction, Try again, Write next sentence) appear 4 seconds after the expression change.

Introduction

Explicit feedback on errors has been shown to have a significant positive effect on language learning (Li, 2010; Mackay & Goo, 2007). In spite of this, correction rates for learner errors by language teachers is generally low (Chaudron, 1988; Carroll, 1993). The reasons why teachers do not correct range from a desire not to disrupt the flow of conversation, to a belief that correction is harmful to acquisition (Truscott, 1996). While explicit, negative verbal feedback is frequently avoided by teachers, non-verbal cues are widely used in the classroom (Wang & Loewen, 2016). The effectiveness of this type of multi-modal feedback is not clear as the subject has received little attention in the literature (Lyster et al., 2013). However, recently some interesting results are beginning to show the potential of non-verbal feedback to aid second language teaching. In Sloan and Carson-Berndsen (2017), a change to a negative facial expression of an animated avatar was demonstrated to have a significant effect on non-native English speakers when compared to native speakers. In contrast to native speakers, non-native speakers interpreted a frown and averted gaze as being due to their mistakes in production and they reduced the complexity of the subsequent sentence. These results show that it may be possible to guide language learners toward advantageous learning strategies by providing feedback on errors through non-verbal means.

Online environments have offered new opportunities for language learners to develop their second language skills. Intelligent tutoring systems, grammar checkers and virtual worlds are examples of some of the technologies which have emerged in recent years. However, the effectiveness of such technologies on second language learning has been called into question. Golonka et al. (2014) reported limited evidence of efficacy of technology in 350 language teaching studies. Only chat and Automatic Speech Recognition for pronunciation were found to have a significant positive effect on acquisition. More recently, as technology and connectivity has advanced, social networking sites for language learning have emerged and are affording increased opportunities for interaction and collaboration. While uptake has been high, Liu et al. (2015) note that there is a lack of understanding among educators as

to how to employ these tools to best aid second language acquisition. With increased connectivity and users, it is imperative to grasp a fine-grained understanding of the process of language learning which occurs on e-learning platforms.

One of the most promising areas in which online environments could improve on the traditional classroom is as a space for providing negative feedback. This form of feedback involves directly identifying a learner's errors to promote reflection on the hypotheses which lead to the error. Negative feedback, however, can break politeness strategies. Politeness strategies describe behaviours aimed at avoiding or reducing potential embarrassment or loss of 'face' to others (Brown & Levinson, 1987). The avoidance of negative feedback likely contributes to the aforementioned low error correction rate of language teachers. Pearson et al. (1995) showed that politeness strategies can inhibit the effectiveness of tutoring, as tutors avoid giving negative feedback in an effort to negate disagreement. As interactions in the online environment do not involve sharing the same physical space, it may enable teachers to point out errors more frequently than in the normal tutoring context. In a recent meta-analysis comparing interactions through Synchronous Computer Mediated Communication (SCMC) and Face-to-Face Communication, Ziegler (2016) found a significant impact of both on second language development, with a small advantage for SCMC in productive measures. This is particularly relevant as production-based instruction has demonstrable benefits over comprehension-based instruction in retention of learned material. Shintani (2013) reports that in an analysis of 35 published research projects, both types of instruction show similar effects on production in short-term measurements, but in delayed post-tests (1-75 weeks after the experiment) production-based instruction was more effective.

Facial expressions offer a potentially powerful medium to provide feedback, as many expressions can be understood across cultures (Russell, 1994) and people have an innate preference to pay attention to faces and face-like stimuli (Frank et al., 2009). The use of avatars in place of humans allows for conveying facial expressions with precise control over the experimental conditions. These expressions can be used to elicit responses in people analogous to expressions from humans. Bergmann et al. (2015) showed that humans align to both other humans and human-like avatars in similar ways. They performed a study on lexical and gestural alignment in human-human and human-avatar interactions, where alignment refers to the adoption of the interlocutor's behaviour. There were comparable results for both the human and human-like avatar conditions, but not for the non-human like avatar. Similar results on language behaviour in Virtual Reality were also reported in a pair of studies by Heyselaar et. al (2015). These results show that in certain circumstances, avatars can be used in place of humans to elicit equivalent behaviour from human participants.

Platform Development

The ERLE platform was developed to provide English language learners with an environment in which to type sentences and receive feedback through the facial expressions of an avatar. Design decisions during platform development were made with the goal of creating an effective learning platform by incorporating research from the relevant literature and the first author's experience as both a language teacher and learner. The main considerations and design decisions in the ERLE platform – the avatar, emotions and text-based interaction – are described in this section.

The application of animated avatars has been increasing in a variety of domains including counselling (Bond, 2017), healthcare (Zahedi et al., 2016) and companionship (Rich & Sidner, 2009). One advantage of avatar interaction is that it allows simulation of real-world situations without the consequences which may arise in the real context. For language education this is an important feature, as interaction with an avatar may allow for learner production without fear of making mistakes or not knowing what to say next. The avatar developed for the ERLE platform was designed to engage learners in the interaction by maximising its appeal, yet bearing in mind potential pitfalls associated with human-like

appearances. Mori et al. (2012) coined the term ‘uncanny valley’ to describe a humanoid object which appears almost, but not exactly like a real human, eliciting feelings of eeriness in observers. Zell et al. (2015) explored the influence of shape and material on perceptions of computer-generated faces, finding that realistic materials reduce appeal, while less realistic shapes increase reported intensity of expressions. The avatar used for ERLE was modelled to appear close to, but not exactly human-like. The design of mesh, materials and rig is shown in Figure 2. The rig controls movement of the mesh and is displayed as grey bars in Figures 2(c) and 2(d) below. The position of the rig in this avatar allows for animations which include rotation of the body and head, and fine control over the face. This enabled the creation of the range of expressions described in the following section.

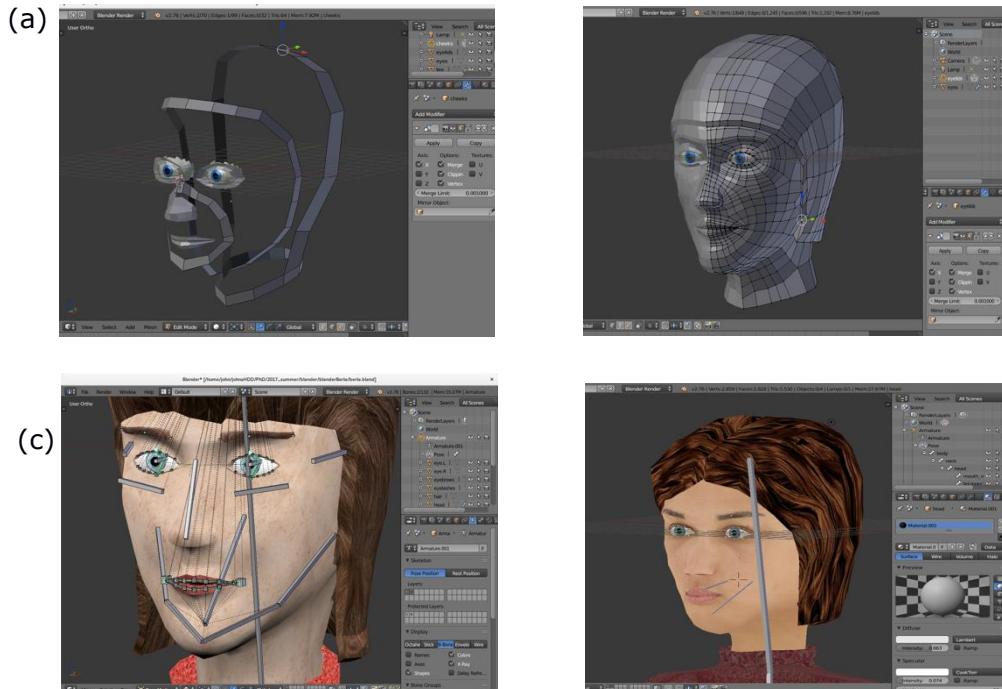


Figure 2: Development of the avatar using the 3D modelling software ‘Blender’. (a) and (b) show the design of the shape of the face, while (c) and (d) add materials and a skeleton rig for controlling animations.

The expressions chosen for the avatar to display were based on the set of core expressions described as universal by Eckman and Friesman (1971) - disgust, fear, sadness, anger, happiness and surprise. Anger was removed and replaced with interest as it was considered inappropriate to display anger in an educational context, while interest could elicit increased engagement from learners. To facilitate in providing this feedback to the learners, a modification of Scherer’s Geneva Emotion Wheel (Scherer, 2005) was used as the interface.

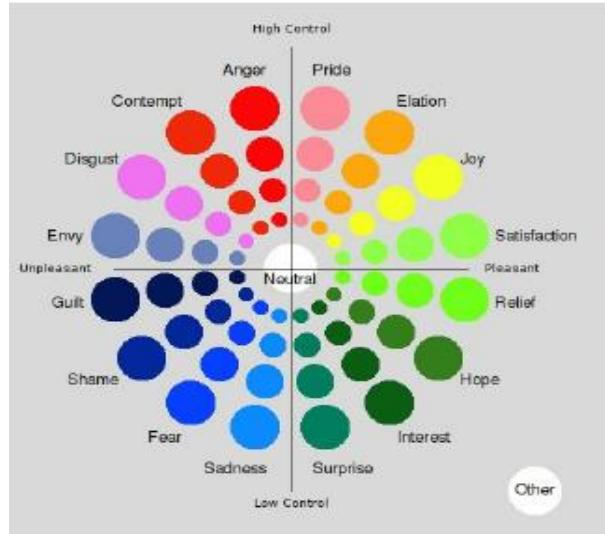


Figure 3: Geneva Emotion Wheel (Scherer, 2005)

The Geneva Emotion Wheel was developed in an attempt to define emotion as distinct from other affective processes, states and traits. It uses words to describe categories of emotion and plots them on a 2-dimensional plane with axes describing pleasantness and control. The ERLE teacher interface based on this model of emotions is shown below in Figure 4. It contains a smaller set of emotions than the Geneva Emotion Wheel, chosen for their appropriateness to the task, and simplified so as not to overburden the teacher when providing feedback. When well-formed learner sentences are received, the teacher clicks one of the buttons representing an emotion and degree of intensity. This choice is dependent on the teacher, the sentence and its context. The learner sentence, "Yesterday I got promoted" may typically elicit a 'happy' or 'surprised' response, but in the context of the learner having expressed a desire to remain in their current position, 'sad' could be more appropriate. All responses are stored in the database as Cartesian coordinates, e.g. [-2,-2] for very sad.

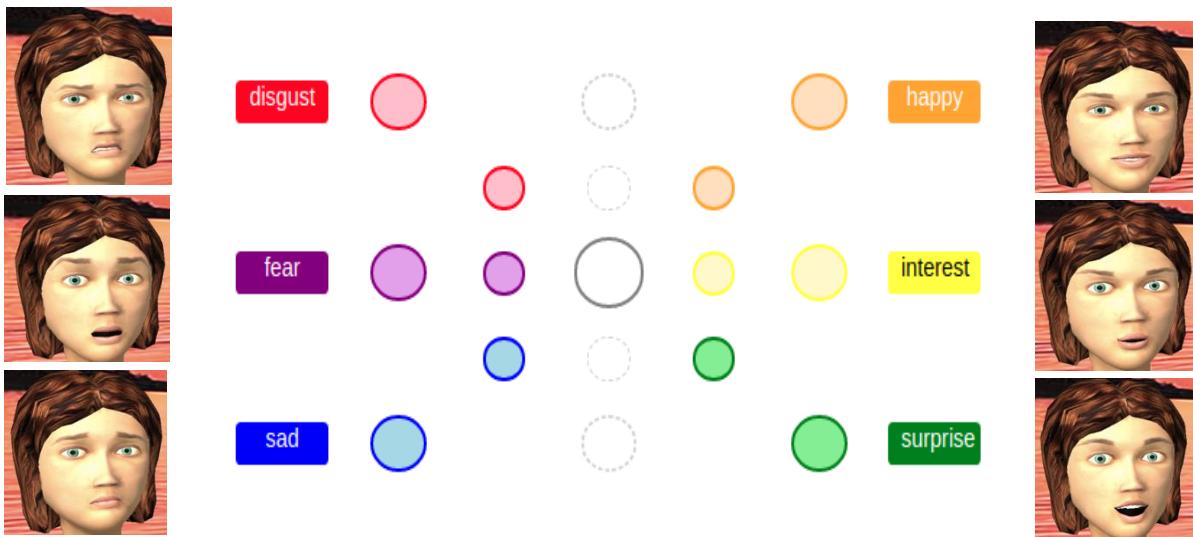


Figure 4: Modified Geneva Emotion Wheel on ERLE's teacher interface with the corresponding avatar expressions.

Text-based input is currently the only method for the learner to input sentences on the platform. This was chosen for two reasons. Firstly, for a pilot study with a prototype platform, practicality in implementation and use are important concerns. Tools for taking

text input from a web-browser and sending over a network are common, fast and robust. Users of the platform will be those who have access to a computer and thus are expected to be familiar with typing and entering text on websites. Secondly, text was employed to afford learners time to create and review any production before sending. This is based on Lin et al.'s (2013) meta-analysis which found a positive overall effect of text-based SCMC over other means of communication. The increase in time and attention encourages a focus on form and can result in higher quality output from learners (Lai & Zhao, 2006).

Experiment Design

The platform is currently being evaluated in a pilot experiment following the usability testing research methodology outlined in Rubin and Chisnell (2008). Twenty adult, non-native English speaker participants, who are currently studying English, have been invited to use the website while the researcher, in the role of the teacher, monitors their behaviour to ascertain whether the site is performing as designed. It is important to first determine whether users are able to navigate and interact in the desired manner. Later, feedback from participants will be used to evaluate the design and drive improvements. The small sample size has been chosen so as to allow the researcher time to provide individual attention to the participants as they use the site and deal with any issues which arise. Small sample sizes of 10 to 30 participants have been demonstrated sufficient for this form of pilot testing web applications (Albert & Tullis, 2013).

Each participant is instructed to take two, 30-minute sessions each week for 4 to 8 weeks. In these sessions, the participant chooses an issue for discussion, then types and enters sentences about the topic for 30 minutes. Sentences are typed one-by-one into a textbox (see Figure 5).



Figure 5: Learner interface for entering sentences

The sentence is available to the researcher to correct immediately (see Figure 6).

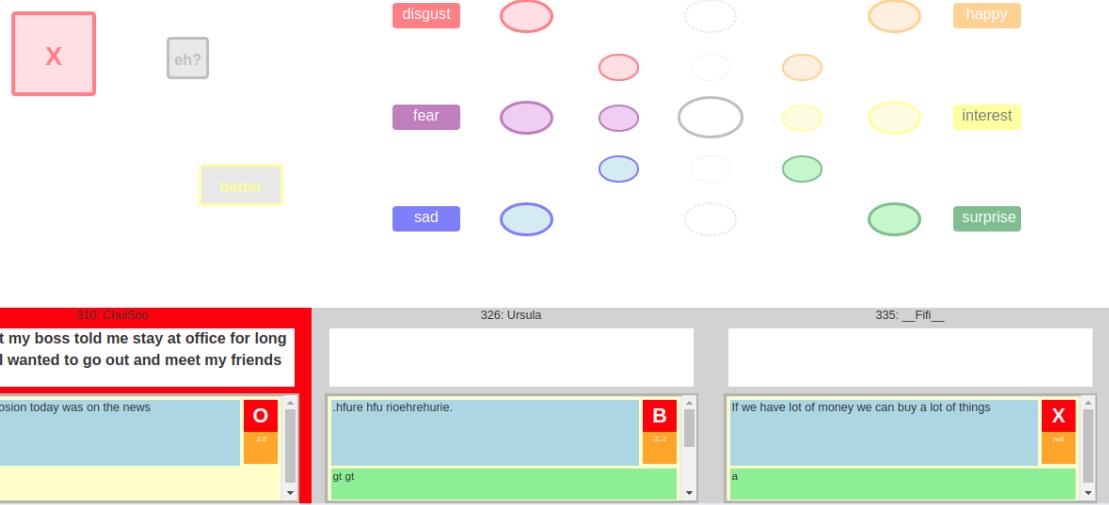


Figure 6: ERLE teacher interface for correcting sentences. In this case, the current learner sentence (in the red box) is ill-formed. The teacher would click the 'X', highlight the incorrect region and provide a correction.

If the sentence is ill-formed, the researcher highlights the region(s) of error(s) and offers suggestions to create a well-formed sentence. The participant then views the response to the ill-formed sentence as gaze aversion and a frown as exemplified in Figure 1. Well-formed sentences elicit responses appropriate to their content. In these cases, the teacher chooses and clicks on an emotion from the modified Geneva Emotion Wheel. These responses are displayed to the participants by means of a change to the appropriate expression (see Figure 4).

The first class is directly monitored by the researcher in the lab or over Skype through screen-sharing, with the further classes taking place at the participant's time and place of choosing. The participants and researcher are in contact by phone to report any problems during a session, and each weekend discuss the sessions by online video-chat. At the end of four weeks, each participant is asked to complete a short, anonymous questionnaire about their experience. The discussions and feedback are being used to decide on which features to retain, improve on and remove. Suggestions from participants about desired content and features is also requested.

Data Collection

The sentences and feedback collected through ERLE will be used to provide information on the learning process with a view to improve the e-learning environment by semi-automating correction of learner errors. Over the past five years there has been significant interest in developing models to detect and correct errors in non-native speaker production. These Grammatical Error Correction (GEC) models are an attempt to automate the detection and feedback task. The growth of this research direction has been spurred by the arrival of deep learning and the public release of a number of large datasets of L2 writing, annotated for errors and corrections. The EF Cambridge Open Language Database (EFCAMDAT) (Geertzen et al., 2013) containing 33 million words from learner submissions to 'Englishtown' (an online English learning platform) and the NUS Corpus of Learner English (NUCLE) (Dahlmeier, 2013) with 1,400 essays written by students at the National University of Singapore are prominent examples. The data collected from ERLE will form a corpus similar to those mentioned, but different in a number of key ways which could benefit GEC. Firstly, sentences produced are corrected in real time, meaning both the teacher and learner are online at the same time, and are under pressure to be accurate. Secondly, the emotion label is a feature not currently available in existing datasets and may prove predictive of future production. Finally, and as noted earlier, an avatar's change to a negative expression causes non-native speakers to reduce sentence complexity. This behaviour may lead to a

corpus of production close to the non-native speakers' true competence in English. An example of the data stored in the corpus is shown below in Figure 7.

Sentence	Judgement	Emotion	Error Index	Correction
"Last night I watch TV"	X	Null	[13,18]	"watched"
"I saw a great movie"	O	[1,1]	Null	Null

Figure 7: Example of the data collected through ERLE. Null represents no entry. In the 'Emotion' column, 'Null' is represented to the non-native speaker as a sequence of increasingly confused expressions (see Figure 1), while '[1,1]' indicates 'happy' as coordinates on the modified Geneva Emotion Wheel (see Figure 4)

The corpus of learner sentences, native speaker judgements, emotions and corrections will be used to train a GEC model with the goal of semi-automating the feedback task. Semi-automation refers to the model being used as a tool for assisting the teacher by suggesting feedback in real time. While full automation would be ideal, performance of current state-of-the-art GEC tools is not at a level which would allow this anytime soon since precision toward native-like performance (above ~80%), tends to result in a decrease in recall toward 20% (Yannakoudakis, 2017). Identifying one out of every five learner errors would not allow full automation, but could provide assistance to the teacher in the form of suggestions.

Conclusion and Future Work

The ERLE e-learning platform has been developed with the goal of providing language learners with an engaging, online environment in which to receive detailed feedback on their production. The use of an animated avatar employing facial expressions to convey native speaker judgement works toward this goal by drawing the learner into the interaction and focussing attention on the form of production. Initial testing has seen encouraging results and useful feedback from participants. A redesign of the application based on initial feedback is underway. Automatic Speech Recognition, a wider range of expressions and increased teacher feedback capabilities including emotional text-to-speech are being considered for implementation in the next version of ERLE.

References

- Albert, W., & Tullis, T. (2013). Measuring the user experience: collecting, analyzing, and presenting usability metrics. Newnes.
- Bergmann, K., Branigan, H. P., & Kopp, S. (2015). Exploring the alignment space–lexical and gestural alignment with real and virtual humans. *Frontiers in ICT*, 2, 7.
- Bond, J. (2017). Hearing voices? Giving them a face can help. Retrieved from [https://doi.org/10.1016/S0262-4079\(17\)32337-0](https://doi.org/10.1016/S0262-4079(17)32337-0)
- Brown, P., & Levinson, S. C. (1987). Politeness: Some universals in language usage (Vol. 4). Cambridge university press.
- Carroll, S., & Swain, M. (1993). Explicit and implicit negative feedback: An empirical study of the learning of linguistic generalizations. *Studies in second language acquisition*, 15(3), 357-386.
- Chaudron, C. (1988). Second language classrooms: Research on teaching and learning. Cambridge University Press.

Dahlmeier, D., Ng, H. T., & Wu, S. M. (2013). Building a large annotated corpus of learner english: The nus corpus of learner english. In Proceedings of the eighth workshop on innovative use of NLP for building educational applications (pp. 22-31).

Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of personality and social psychology*, 17(2), 124.

Frank, M. C., Vul, E., & Johnson, S. P. (2009). Development of infants' attention to faces during the first year. *Cognition*, 110(2), 160-170.

Geertzen, J., Alexopoulou, T., & Korhonen, A. (2013, October). Automatic linguistic annotation of large scale L2 databases: The EF-Cambridge Open Language Database (EFCAMDAT). In Proceedings of the 31st Second Language Research Forum. Somerville, MA: Cascadilla Proceedings Project.

Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: a review of technology types and their effectiveness. *Computer assisted language learning*, 27(1), 70-105.

Heyselaar, E., Hagoort, P., & Segaeert, K. (2017). In dialogue with an avatar, language behavior is identical to dialogue with a human partner. *Behavior research methods*, 49(1), 46-60.

Lai, C., & Zhao, Y. (2006). Noticing and text-based chat. *Language Learning & Technology*, 10(3). 102-120.

Li, S. (2010). The effectiveness of corrective feedback in SLA: A meta-analysis. *Language Learning*, 60(2), 309-365.

Lin, W. C., Huang, H. T., & Liou, H. C. (2013). The effects of text-based SCMC on SLA: A meta analysis. *Language Learning & Technology*, 17(2). 123-142.

Liu, M., Abe, K., Cao, M., Liu, S., Ok, D. U., Park, J. B., ... & Sardegna, V. G. (2015). An analysis of social network websites for language learning: Implications for teaching and learning English as a Second Language. *CALICO Journal*, 32(1), 114.

Lyster, R., Saito, K., & Sato, M. (2013). Oral corrective feedback in second language classrooms. *Language teaching*, 46(1), 1-40.

Mackey, A., & Goo, J. (2007). Interaction research in SLA: A meta-analysis and research synthesis.

Mori, M., MacDorman, K. F., & Kageki, N. (2012). The uncanny valley [from the field]. *IEEE Robotics & Automation Magazine*, 19(2), 98-100.

Pearson, N. K., Kreuz, R. J., Zwaan, R. A., & Graesser, A. C. (1995). Pragmatics and pedagogy: Conversational rules and politeness strategies may inhibit effective tutoring. *Cognition and instruction*, 13(2), 161-188.

Rich, C., & Sidner, C. L. (2009). Robots and avatars as hosts, advisors, companions, and jesters. *AI Magazine*, 30(1), 29.

Rubin, J., & Chisnell, D. (2008). *Handbook of usability testing: howto plan, design, and conduct effective tests*. John Wiley & Sons.

Russell, J. A. (1994). Is there universal recognition of emotion from facial expression? A review of the cross-cultural studies. *Psychological bulletin*, 115(1), 102.

Scherer, K. R. (2005). What are emotions? And how can they be measured?. *Social science information*, 44(4), 695-729.

Shintani, N., Li, S., & Ellis, R. (2013). Comprehension-Based Versus Production-Based Grammar Instruction: A Meta-Analysis of Comparative Studies. *Language Learning*, 63(2), 296-329.

Sloan, J., & Carson-Berndsen, J. Was it something I said? Facial Expressions in Language Learning. In Proc. 7th ISCA Workshop on Speech and Language Technology in Education (pp. 1-6).

Truscott, J. (1996). The case against grammar correction in L2 writing classes. *Language learning*, 46(2), 327-369.

Wang, W., & Loewen, S. (2016). Nonverbal behavior and corrective feedback in nine ESL university-level classrooms. *Language Teaching Research*, 20(4), 459-478.

Yannakoudakis, H., Rei, M., Andersen, Ø. E., & Yuan, Z. (2017). Neural Sequence-Labeling Models for Grammatical Error Correction. In Proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing (pp. 2795-2806).

Zahedi, F. M., Walia, N., & Jain, H. (2016). Augmented virtual doctor office: Theory-based design and assessment. *Journal of Management Information Systems*, 33(3), 776-808.

Zell, E., Aliaga, C., Jarabo, A., Zibrek, K., Gutierrez, D., McDonnell, R., & Botsch, M. (2015). To stylize or not to stylize?: the effect of shape and material stylization on the perception of computer-generated faces. *ACM Transactions on Graphics (TOG)*, 34(6), 184.

Ziegler, N. (2016). Synchronous computer-mediated communication and interaction: A meta-analysis. *Studies in Second Language Acquisition*, 38(3), 553-586.

Yan Tian

Shanghai Jiao Tong University, Shanghai, China

tianyan@sjtu.edu.cn - maryyantian@gmail.com

Information of language deficiency obtained from learner translation error corpus

Bio data



Yan Tian is Professor in the School of Foreign Languages at Shanghai Jiao Tong University (SJTU). She received her Ph.D. from the Department of Computer Science & Engineering at SJTU. Her interests include online automated translation scoring and intelligent Chinese learning system. She is the member of EuroCALL and the member of Shanghai Foreign Language Education Technology Association.

Abstract

Many EFL learners' English proficiency is not ideal concerning their time spent on learning English. Are there any new ways to find out their English deficiency? Based on a deficiency model rather than a developmental model, this paper explores the corpus approach to the discovery of EFL learners' deficiency. Based on the Chinese-English Learner Translation Error Corpus which is built to support a dynamic online system for the automated scoring of students' translations, it is found that 14 main translation error types under the category of Semantic Error, Grammatical Error and Translation Error. The results show that Semantic Error ranks the highest, accounting for 51.61% errors, followed by Grammatical Error (32.96%) and Translation Error (only 15.43%). It is concluded that the learner translation error corpus can provide detailed information of the English language deficiency of EFL learners.

Conference paper

Introduction

The English proficiency of Chinese college students is comparatively low concerning their time spent on English learning. Many of them have learned English for more than ten years; however, most of them cannot properly express themselves in English. A mix of Chinese and English is very common, especially in their writing of essays and research papers. Thus, how to help the students efficiently enhance their English proficiency is a hard nut to crack for most teachers of English in China.

Translating is not only regarded as a language skill, but also as a means of language learning (Cook, 2010). This paper discusses translation as an approach to discovery of the English language deficiency of college students.

Translation competence is deemed as one of the productive language skills which could be used to assess learners' language proficiency (Schaffner & Adab, 2012). Therefore, translation is tested in many national English proficiency tests for non-English majors in

China. For example, the National College English Examination (for non-English majors) embraces the Chinese to English translation test as one of the effective ways to test students' English deficiency.

Learner corpora have been widely used in English teaching and learning (Amaral, Meurers & Ziai, 2011; Uria, Maritxalar & Zabala, 2014; Choi, 2016; Crosthwaite, 2017; Godwin-Jones, 2017a; Godwin-Jones, 2017b; Harvey-Scholes, 2018). However, learner translation error corpora are relatively few and far between, especially the corpora of Chinese to English and English to Chinese translation. To support a dynamic online system for translation learning and testing (Tian, 2017), which automatically and instantly provides EFL learners with their translation scores and error feedback after the learners submit their translations online, two translation error corpora were built. One is the Chinese-English Translation Error Corpus of Chinese College Students, and the other is the English-Chinese Translation Error Corpus of Chinese College Students.

To discover the English language deficiency of the college students from the perspective of their translation errors, the frequency of all the errors occurred in the Chinese-English Translation Error Corpus is calculated. Through error analysis, students' error types, error locations and error frequency were found which pinpoint the students' English deficiency.

Data Collection

The data of the Chinese-English Translation Error Corpus of Chinese College Students were collected from non-English majors at Shanghai Jiao Tong University. The data of Chinese to English translation were collected for one semester. The online platform Wen Juanxing (www.wjx.cn) makes it possible for students to take translation tests online and for teachers to download the translations. The Chinese to English translation tests were the authentic translation tests, a paragraph of about 200 Chinese words, taken from the National College English Examination. The data were collected in English class each week. The students were asked to translate the paragraphs as if they were taking the real examinations, which means that they were not allowed to look up new words in dictionaries or use any online resources while the teachers supervised the whole process. Then the data were collected from the website and manually annotated.

The Chinese-English Translation Error Corpus of Chinese College Students is composed of the translation errors of students and the error coding information. All of the errors were annotated with the error types, the location number of the errors, the corrections of the errors, and the scores of the sentences. The original paragraphs with their standard translation suggested by the Committee of the National College English Examination was also put in the corpus to help annotators to tag errors.

Translation Error Taxonomy

Preliminary annotation was conducted to determine the translation error taxonomy. 12 sample translations from the raw data were chosen for this purpose. After many experimental annotations, 14 types of translation errors under 3 categories were determined based on the discussions. The 3 categories are Semantic Errors, Grammatical Errors, and Translation Errors. And the error types are as follows:

- 1) Semantic Errors. There are 4 semantic errors: Incorrect Dictions, Incorrect Collocations, Improper Cohesion, and Wrong Terminologies.
- 2) Grammatical Errors. There are 8 grammatical errors: Incorrect Word Formation, Incorrect Part of Speeches, Incorrect Tenses, Improper Word Order, Incorrect Clauses, Misuse of Infinitive Verbs, Subject-verb Disagreement, and Incorrect Passive Voice.
- 3) Translation Errors. There are 2 translation errors: Improper Addition of Words and Omission of Words.

Obviously, it is impossible to embrace all the students' translation errors in these categories. Thus, the solution is to slot into them to the closest fit. For example, the

wrongly used articles or prepositions are annotated as Incorrect Collocations, which means that the nouns are used with wrong articles or with wrong prepositions.

Annotation

At the end of the semester, teachers downloaded the data from the website. 6 postgraduates of Masters of Translation at Shanghai Jiao Tong University manually annotated the data. First, students' translations were parsed into sentences. Then each word was assigned to a number for the convenience of tagging the location of errors. Next, annotators not only tagged the errors, but also provided the corrections for all the errors. Lastly, each sentence was scored with a 15-mark system (see Figure 1).

Figure 1. Error annotation

A	B	C	D	E	F	G	H	I	J	K	L
	标准译文	学生	译文	单句得分	错误类型1	错误位置	应改为	错误类型2	错误位置	应改为	错误类型3
32.	随着中国的改革开放，如今许多年轻人都喜欢举行西式婚礼。许多年轻人喜欢举行西式婚礼。	王家乐	With Chinese policy of revolution and openness, now many young people like holding western-style wedding.	11	02 术语有误	4	reform				
33.	新娘在婚礼上穿着白色婚纱，因为白色被认为是纯洁的象征。		The bride wears a white wedding dress because white is considered as a symbol of nature.	9	01 用词有误	1	brides	01 用词有误	14	purity	
34.	然而，在中国传统习俗中，白色经常是葬礼上使用的颜色。		However, in traditional Chinese culture, white is often used in funerals.	15							
35.	因此务必记住，白色一定不要用作丧葬礼物，尤其不能送病人或危重病人。		So please bear it in mind that never take white flowers as gifts congratulating recovery to people, especially to the elders and the severely ill.	10	04 漏译	24	patients who are	14 构词有误	26	ill	
36.	同样，礼金也不能放在白色信封里，而应该放在红色信封里。		Similarly, the cash gift cannot be packed in a white envelope, but in a red envelope.	11	01 用词有误	3	cash gift				
37.	随着中国的改革开放，如今许多年轻人都喜欢举行西式婚礼。许多年轻人喜欢举行西式婚礼。	董婧	With Chinese revolution going on, many young people like play western wedding today.	10	01 用词有误	2	China's	02 术语有误	3	reform and opening up	
	新娘在婚礼上穿着白色婚纱，因为白色被认为是纯洁的象征。		Since white is regard as the symbol of innocence, bride wear white dress in wedding.	10	01 用词有误	9	purity	13 主谓一致有误	12	wears	
	然而，在中国传统习俗中，白色经常是葬礼上使用的颜色。		However, in Chinese traditional culture	8	06 被动语态	9	is used	14 构词有误	11	funeral	

Column A is the Chinese sentences to be translated; Column B, the standard English translations; Column C, student names; Column D, students' translations; Column E, the scores for the translated sentences given by the annotators; Column F, error types; Column G, error locations and Column H, the corrections, etc..

It should be noted that the errors were not weighted within the taxonomy. Due to the complexity of the errors, it was very hard to determine the weight value for each error.

Results

Students' translations of the 21 authentic translation tests (about 4000 sentences) from the National College English Examination were chosen to be carefully analyzed. The frequency of the error types was calculated, as shown in Figure 2.

Figure 2. Frequency of the error types

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
1 错误类型	茶	大米与大熊猫	风筝	汉语演讲	核能	互联网	黄色	教育	教育公平	快速	丽江	旅游	旅游2	乌镇	信息技术	中餐	中国风	中国风	中国风	中餐	黄色2	红色	白色	总数		
2 01 用词有误	81	97	116	27	81	165	128	70	134	154	177	98	52	87	83	78	118	97	160	133	62	33	55	59	2345	
3 02 术语有误	0	42	62	0	26	45	0	0	3	0	0	0	0	0	23	11	0	0	0	0	0	0	0	21	20	253
4 03 增译不当	11	8	40	12	7	41	14	12	11	10	33	28	10	10	25	10	12	25	20	8	8	1	1	3	360	
5 04 漏译	32	20	20	12	46	96	35	11	32	16	2	19	6	2	16	9	9	12	38	31	11	15	16	41	547	
6 05 搭配有误	28	2	27	11	16	26	6	12	26	1	0	10	0	0	23	43	22	6	5	29	20	3	6	7	329	
7 06 被动语态有误	14	0	4	3	6	24	0	0	1	5	0	1	1	0	4	1	0	0	1	9	2	0	2	2	80	
8 07 从句有误	5	2	0	1	2	2	0	1	6	0	0	0	2	3	0	5	4	8	0	2	2	0	2	1	48	
9 08 非谓语动词有误	4	2	10	5	0	7	0	4	1	6	0	3	0	0	2	4	1	1	0	3	1	0	6	1	61	
10 09 词性有误	24	11	13	1	5	34	7	2	4	41	8	11	3	11	0	6	5	9	32	4	4	1	22	19	277	
11 10 时态有误	23	3	8	5	12	14	14	22	9	16	4	4	2	3	26	1	3	2	31	4	1	0	0	2	209	
12 11 语序不当	4	0	1	0	6	9	3	0	3	2	2	0	0	0	0	3	0	4	2	13	6	0	1	2	61	
13 12 衔接有误	13	4	4	3	8	8	13	3	3	2	1	1	2	0	1	20	3	0	1	2	5	3	5	2	107	
14 13 主谓一致有误	8	5	8	3	4	6	16	10	0	1	8	0	0	0	19	3	0	5	0	6	2	0	5	109		
15 14 构词有误	83	4	121	39	55	62	85	25	17	18	12	69	23	6	84	103	5	34	44	32	30	20	73	49	1093	
16 总计	330	200	434	122	274	539	321	172	250	272	247	244	101	122	287	313	185	198	339	270	158	78	210	213	5879	
17																										
18																										
19																										

The first row is the topics of the tests in Chinese. Column A is the error types with their ID numbers. Column B to Column Y are the frequencies of different error types. Column Z is the total number of each error type. As is shown above, the total number of the errors is 5879. The detailed error types are as listed in Table 1.

Table 1. Error types, frequencies and percentage

Error types	Frequencies	Percentage
Incorrect Dictions	2345	39.89
Incorrect Word Formation	1093	18.59
Omission of Words	547	0.093
Improper Addition of Words	360	0.061
Incorrect Collocations	329	0.056
Incorrect Parts of Speeches	277	0.047
Wrong Terminologies	253	0.043
Incorrect Tenses	209	0.036
Subject-verb Disagreement	109	0.019
Improper Cohesion	107	0.018
Incorrect Passive Voice	80	0.014
Improper Word Order	61	0.010
Misuse of Infinitive Verbs	61	0.010
Incorrect Clauses	48	0.008

Students' error types are listed according to the frequency, from the highest to the lowest. The results indicate that "Incorrect Dictions" ranks the highest, accounting for almost 40% of the total errors. The second highly occurred error is "Incorrect Word Formation", which is about 18.6%. Other errors dropped tremendously, none of which has reached 1%.

In addition, it is found that Semantic Errors account for the largest proportion which is 51.61%, followed by Grammatical Errors (32.96%) and Translation Errors (only 15.43%).

The most frequently occurred error "Incorrect Dictions" has many manifestations. For example, the Chinese expressions "kou gan" and "jing xin zhun bei", which should be translated into "taste" and "exquisitely prepared", were incorrectly translated into "mouth feeling" and "full-heart prepared", while the Chinese expression "you yi ge gong tong dian", which should be translated into "have something in common", was incorrectly translated into "have a common point", etc..

Discussion

Due to profound differences between the English language and the Chinese language, Chinese learners of English always find that learning English is painful and time-consuming.

Translation is one of the productive language skills. To some degree, it is more challenging for learners compared with writing and speaking because when learners write or speak, if they cannot express themselves in the target language, they can use other words or expressions to avoid the embarrassment. However, they ought to use the words or expressions required by the source language when translating (Angelelli & Jacobson, 2009). Even if they have a certain freedom for choice of words and expressions, the freedom is limited (Laviosa, 2014). Therefore, translation errors can better reveal learners' language deficiency.

The Translation Error Corpus of Chinese College Students is a rich resource for discovering English language deficiency of students. Based on the big data obtained from the corpus, the model of the English language defects of college students can be built and analyzed, which can help teachers to know exactly about their students' weaknesses. Thus, language learners' error corpus plays a key role in obtaining the information of English deficiency of college students.

With the technology of educational data-mining on a large scale, more information about the student's translating process can be obtained and analyzed. Hopefully, learners can benefit from the personalization and contextualization of their learning process.

References

- Amaral, L., Meurers, D., & Ziai, R. (2011). Analyzing learner language: towards a flexible natural language processing architecture for intelligent language tutors. *Computer Assisted Language Learning*, 24(1), 1-16.
- Angelelli, C.V. & Jacobson, H.E. (2009). *Testing and Assessment in Translation and Interpreting Studies*. Amsterdam: John Benjamins Publishing Company.
- Choi, I., (2016). Efficacy of an ICALL tutoring system and process oriented corrective feedback, *Computer Assisted Language Learning*, 29(2), 334-364.
- Cook, G. (2010). *Translation in Language Teaching*. Oxford: Oxford University Press.
- Crosthwaite, P. (2017). Retesting the limits of data-driven learning: feedback and error correction, *Computer Assisted Language Learning*, 30(6), 447-473.
- Harvey-Scholes, C. (2018). Computer-assisted detection of 90% of EFL student errors. *Computer Assisted Language Learning*, 31:1-2, 144-156.
- Godwin-Jones, R. (2017). Data-informed language learning. *Language Learning & Technology*, 21(3), 9-27.
- Godwin-Jones, R. (2017). Scaling up and zooming in: Big data and personalization in language learning. *Language Learning & Technology*, 21(1), 4-15.
- Laviosa, S. (2014). *Translation and Language Education*. London: Routledge.
- Schaffner, C. & Adab, B. (2012). *Developing Translation Competence*. Shanghai: Shanghai Foreign Language Press.
- Tian, Y. (2017). A dynamic online system for translation learning and testing. In K. Borthwick, L. Bradley & S. Thouësny (Eds), *CALL in a climate of change: adapting to turbulent global conditions – short papers from EUROCALL 2017* (pp. 300-305). Research-publishing.net.
- Uria, L., Maritxalar, M. & Zabala, I. (2014). An Environment for Learner Corpus Research and Error Analysis: The Study of Determiner Errors in Basque. *International Journal of Computer-Assisted Language Learning and Teaching*, 4(3), 34-51.

Pi-hua Tsai

Mackay Medical College, Taipei, Taiwan

tsaipihua@gmail.com

Students as producers of content for computer-assisted pronunciation training: a case study in Taiwan

Bio data

Tsai Pi-hua, an associate professor in Taiwan, has been teaching English as a foreign language for 30 years. Her fields of interest include computer-assisted pronunciation training, English for specific purpose, corpus linguistics, and discourse analysis.



Abstract

This study examined the effect of the integration of digital storytelling into computer-assisted pronunciation training (CAPT). Unlike most studies on CAPT, this one used learning materials produced by the learners, that is, their own stories. The 55 college students included in this project were randomly divided into three groups: one control group (hereafter *the Control Group*), with 26 students; and two experiment groups (*the CAPT Group*, with 19 students; and *the CAPT & Digital Storytelling Group*, with 10 students). Both experiment groups practiced the stories they wrote on the MyET system, but differed in that *the CAPT & Digital Storytelling Group* created digital storytelling products and posted their outcome to YouTube, while *the CAPT Group* did not. The results showed that although the experiment groups did not outperform *the Control Group*, they made significant progress in all the categories of evaluation (i.e., segmental pronunciation intonation, timing and overall performance). Furthermore, they made more progress in the categories of intonation, timing and overall performance than in segmental pronunciation. *The CAPT & Digital Storytelling Group* demonstrated better performance in pronunciation while *the CAPT Group* did better in the rest of the categories. Such results showed that use of different technologies might result in progress in different aspects of speech production. Teachers can introduce various technologies at an appropriate point in each student's learning phase so they can make the best use of a technology to improve speech performance. Some qualitative analysis of participants' feedback on use of the stories they wrote was also presented and discussed.

Conference Paper

Background and purpose of this project

Good pronunciation contributes to language learners' effective communication with native speakers of target language. However, compared to other aspects of English teaching, pronunciation instruction has not received enough attention from language teachers or

academic researchers (Silveira, 2002). Moreover, the pedagogical instruction of pronunciation used to focus mainly on segmentals, that is, the vowels and consonants instead of suprasegmentals, which are more directly relevant to speaking skills because of their close connection to discourse meaning and connected speech (Levis and Grant, 2003). Above all, it is through suprasegmentals that the emotions of speakers are often expressed.

As technology has advanced, CAPT software, such as Protea's *Connected Speech* (Protea Textware, 2013), has been incorporated into the pedagogy studies of pronunciation (including segmentals and suprasegmentals), such as Busà (2008), Carey (2005), Chun (2002), Hincks and Edlund (2009), Seferoglu (2005). The software uses multisensory tools such as automatic speech recognition (ASR) and speech visualizing technology to show learners L2 segment durations, rhythmic tendencies, reduction processes, pitches, and intonation contours of model utterances. CAPT software such as *MyET*, which was designed in Taiwan and sold throughout Asia, can provide English language learners with immediate feedback through visual displays such as pitch graphs that can support the recognition and production of intonation contours and prominent syllables and help raise learners' awareness of the deviation of their utterance from that of native speakers. (See Figure 1 for a snapshot of *MyET*.) Students can modulate their speech by referring to scores and tips the software provides. Above all, in such a private, stress-free environment, learners can retain their self-confidence and not feel intimidated by making endless trials and errors.

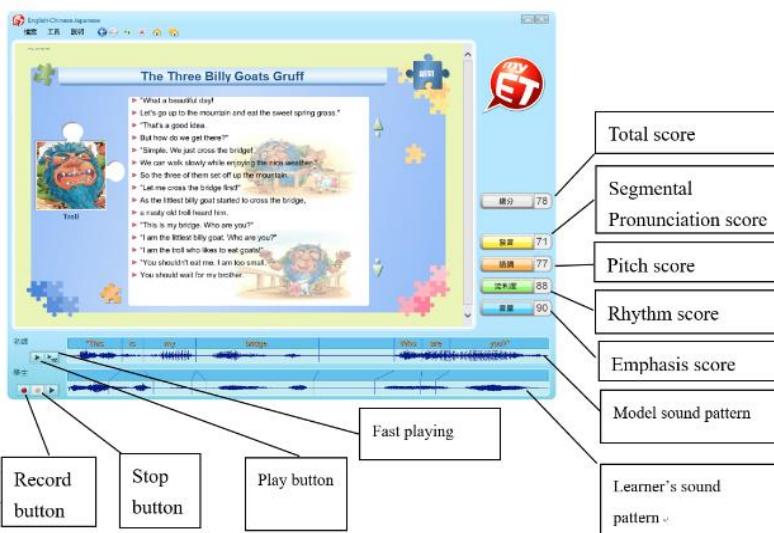


Figure 1 A snapshot of the learning interface of *MyET*

Although the benefits of using CAPT software have been reported, it was said to lack pedagogical foundation. Learners may not be able to interpret sound waves displayed on the software. Moreover, the materials the software provides were said to be not intriguing enough (Tsai, 2006). Most materials used in the software were designed from researcher/teacher viewpoints based on their teaching experience instead of what learners feel interested in most, such as popular music. Learners may not like the content of the material due to cultural differences and feel disconnected during their practice with the material. Moreover, some participants considered mimicking the native speakers' intonation too challenging and the practice "unnatural" (Tsai 2015). Technology alone cannot solve all the students' pronunciation problems (Nielson, 2011). Instructors may need to devote themselves to designing learning content that is more relevant to the students' life.

To engage students in a meaningful and real-world task in the classroom, Castañeda (2013) suggests the use of digital storytelling, which students can develop and upload to YouTube. She considers digital storytelling an effective tool that can enhance language learners' ability in communicating their emotions and presenting information to an audience. By

posting their digital storytelling videos on YouTube, learners have a real audience instead of just their professor (Hafner & Miller, 2011). Gregori-Signes (2014) claims that digital storytelling is a great tool for working with new technologies to generate all sorts of activities that can motivate students. The purpose of this study is to explore whether integration of digital storytelling into CAPT can motivate learners, invigorate their pronunciation learning, and above all, improve speech production.

Before learners can focus on pronunciation practice, it is essential for them to develop awareness of features of English prosody patterns, such as pausing, word stress, and sentence-final intonation in spoken English. To familiarize participants with the prosody system of English and make pronunciation instruction more focused and effective, Tanner and Landon (2009), and Mueller (2010) proposed cued pronunciation readings (CPR). The pronunciation materials they designed were computer-based and self-directed and could help improve students' perception of the prosodic features. Some culturally constructed artifacts were used to raise learners' attention to those features, such as diacritics, including small and big dots, stress, intonation markers, underlining, and highlighting.

Learners usually begin by listening to passages of around 150-300 words recorded by native speakers of English and marked with the location of an individual suprasegmental feature (e.g., pausing or syllable stress). Then they mimic a native speaker model and record their readings. The steps in a CPR are meant to give visual cues as reinforcement to draw learners' attention to a native model and then have them repeat what they have heard. The system, however, does not provide feedback on students' recordings, though different diacritic locations are marked and presented to learners after the task of reading aloud is completed.

The teaching pedagogy in this 21st Century tends to highlight the learner's active role in language classrooms. According to Johnson (2011), Gail Weinstein, a passionate advocate who used constructivist, holistic models to teach nonnative speakers English and literacy skills, had a vision for putting learners' lives and experiences at the center of curriculum, developed a curricular framework that emphasizes the use of what students have known (e.g., their stories) as the means for learning English. Weinstein thought that students are equipped with a wealth of knowledge and experiences and they can become learning partners with their teacher and their classmates working for a shared purpose such as producing a meaningful product.

Having participants write their learning materials helps keep them focused on course content and engaged with an authentic, emotional context. Learners' own stories may reflect their real-life experiences, emotions, dreams (Hişmanoğlu, 2005), and thoughts and ideas. Practicing speech by reading their stories out loud may make learners feel that they are not just reading out the lines of material that they are not familiar with (Adams, 2003). While reading, they would remember their times of sadness, joy or hardship, the memory of which helps learners express their emotions in their speech production in a more natural way.

Digital storytelling can help motivate participants to do more voluntary practice. In digital storytelling, students can remember new vocabulary better, practice speaking skills more frequently, become competent in speaking the target language, and improve learning performance (Hwang et al., 2014). Although many benefits of digital storytelling were reported, the effect of using it as an instructional tool still needs investigation (Barrett, 2005; Bernard, 2009).

This study investigated the impact of integrating audio and texts of the participants' short stories into the *MyET* system. The research questions of this present study are as follows:

- What is the effectiveness of an approach that integrated digital storytelling into practice with CAPT software using students' own stories?

- What pronunciation problems are the participants aware of throughout the experiment?
- What are the students' attitudes toward the practice with their own short stories through the CAPT program?

Methodology

Subjects

Fifty-five college students about the age of 17 were included in this project. They were randomly divided into three groups: one control group (hereafter referred to as the Control Group), with **26** students; and two experiment groups (the CAPT Group, with **19** students; and the CAPT & Digital Storytelling Group, with **10** students). The *CAPT & Digital Storytelling Group* created their own digital storytelling and posted their outcome products to YouTube, while *the CAPT Group did not*. All the groups took courses that were related to speech training and met for two hours a week.

Experiment design

This present study invited the participants to write **their own stories** to be used as practice materials on a computer-assisted pronunciation training (CAPT) system, *MyET*.

The experiment served as an adjunct to the regular course curriculum and lasted for 13 weeks. In each weekly class meeting, the duration of the experiment was about 40 minutes (including weekly journal writing, that is, reflections on their practice with the CAPT software. In the first and thirteenth meetings, the researcher collected the subjects' reading of a short story as a pretest and post-test, respectively. This study divided the stages of training for the participants into three: listening, performing, and computer-assisted pronunciation learning.

➤ **Listening phase.**

In the second week, the teacher introduced some diacritic marks such as the slash mark (/), indicating a pause between phrases or thought groups; stress mark ('), showing the stressed vowel or focus word; and intonation marks (↑ ↓), illustrating the rise and fall of a sentence as used in Cued Pronunciation Readings. Then, the teacher played the audio file of "*The Story of An Hour*" by Kate Chopin (1894). Students were asked to make diacritic markings of the suprasegmental features of the audio story. Afterward they read aloud a text a couple of times with diacritic markings made by the teacher. The students recorded their own stories and played them back to one another. Afterward they gave feedback on one another's recording. The goal of the training in this phase was to enhance students' perception, prediction, and production of pausing, stress, and pitch of the audio texts.

➤ **Performing phase.**

In the third week, these two experiment groups wrote stories about one senior family member. They could tell his/her story about success, hardship he/she went through or love between them. Their stories were later corrected and recorded by native speakers of English. Their edited stories were then uploaded to the *MyET* system so students could practice them at the next stage, which is the phase of computer-assisted pronunciation learning. In the fourth week, they listened to the recording of their stories made by the native speakers, marked the suprasegmental features, and then read their stories aloud. Having students read aloud something that is familiar to them might be helpful in boosting their desire to do more speaking practice. In the fifth week, the CAPT & Digital Storytelling Group was given a demonstration on how to import the recording of their storytelling and the images they made into *Windows Movie Maker*. After that, using videos, music, and a series of images, they were asked to produce a two- to five-minute film with narration based on the stories they had written. The CAPT Group started practicing their own stories on *MyET* from the fifth week, so they skipped the digital storytelling training.

➤ **The phase of computer-assisted pronunciation (CAP) learning.**

From **the fifth** (for the CAPT Group) **or the sixth week** (for the CAPT & Digital Storytelling Group) **to the twelfth week**, students in the experiment groups practiced their stories that

were incorporated to the *MyET* system. After each weekly practice, they kept a written learning log of their impressions of practicing with the system. These reflections both enable students to examine their own learning process and serve as a significant reference for the teacher to ascertain her students' learning gains and difficulty.

Data analysis

The recordings of the 55 participants' reading the text of a play in the pretest and posttest were collected in order to evaluate their improvement. All the audio files were uploaded to a database operating behind a rating website specifically designed and developed for this study. Each audio file was rated by four raters. The four categories of performance that were rated included that of *pronunciation* (i.e., segmentals), *intonation*, *timing* and *overall performance*.

As to the qualitative analysis, the students' reflective journal entries and the teacher's notes on the students' learning behaviors were examined. In line with the suggestions by Miles and Huberman (1994), the analysis includes editing, segmenting, summarizing the data, organizing and assembling it. The "open coding" proposed by Strauss & Corbin (1990) was used to label and code the themes found in student statements about their learning, and axial coding was employed to note similarities found in the first step of analysis.

Results and discussion

Quantitative results

The interrater reliability of this study, using Cronbach's alpha, is 0.6806, which means there is significant rating consistency among the four raters. As shown in Table 1, the two experiment groups (i.e., the CAPT Group and the CAPT & Digital Storytelling Group) made significant improvement in all the categories ($P<0.05$), although their progress was not great enough to outperform the control group). Specifically, the significant progress the two experiment groups made was demonstrated more in the *intonation* category and less so in that of *pronunciation* (i.e., segmentals).

Table 1. The progress the experiment groups made

Mean			SD	t	P
Before	After	Difference			
P¹	2.64	2.78	-0.15	0.44	-1.81
I²	2.53	2.85	-0.33	0.56	-3.15
T³	2.59	2.87	-0.28	0.54	-2.73
O⁴	2.61	2.82	-0.21	0.42	-2.63

Notes. 1. **P** refers to the category of pronunciation (i.e., segmental production)

2. **I** refers to the category of intonation.

3. **T** refers the category of timing (i.e., fluency).

4. **O** refers the overall performance of the participants' speech production.

The above-mentioned finding is encouraging for teachers to adopt a learner-centered approach to the use of CAPT to help students to improve their intonation. The significant progress of the experiment groups in prosodic aspects such as *intonation* might result from practicing with material they wrote. They could better interpret and express their emotions about their own stories. Moreover, practicing the self-tailored material might be facilitating in making them feel connected to the material for practice and it could also make their practice contextualized and meaningful. Furthermore, it might be the intonation variations of the model teachers, who recorded their stories, that have helped them identify and mimic the intonations more naturally and effectively. Further investigation is necessary to ascertain whether this assumption is true.

The results also indicate no significant difference in group performance between the two experiment groups (i.e., the CAPT & Digital Storytelling Group and the CAPT Group). The insignificance in statistics might have resulted from the fact that the students' practice with the CAPT software was not long enough. Importantly, the teacher/researcher found that the students were too shy to read after the model teachers the software provided because they did not want their reading to be heard by their peers, which might have made them refrain from practicing more confidently and effectively. Moreover, it might be the small group size that has impacted the test results. It is also likely that the Digital Storytelling Group might have considered it an overload for them to do a task that requires using two kinds of technology, that is, CAPT software and that for digital storytelling. Raters' scorings might also have played a role in the insignificant difference in performance. Two raters revealed that it was difficult for them to give high ratings because the students' performances were not outstanding enough to hear much differences in rating. Therefore, not many students received points over 4 on a Likert scale.

However, the CAPT & Digital Storytelling Group made significant progress in the category of *pronunciation* (i.e., segmentals) ($P<0.05$), while the CAPT Group's greatest improvement was in the categories of *intonation*, *timing* and *overall performance*. The fact that the CAPT & Digital Storytelling Group had better performance in the category of *pronunciation* might be because they had to practice reading their stories more times to complete the digital storytelling task well.

Qualitative results

Participants' responses to questions about their awareness of the categories of their pronunciation difficulties are as follows. **Before** their practice, they considered **intonation**, **timing** and **linking** the most difficult categories to learn, especially *intonation*, which they seldom paid attention to. **During** their practice, they might have paid more attention to the categories mentioned above when the frequency of the checks they made on those categories in the questionnaire was calculated. Moreover, they revealed that **after the practice**, those categories were the ones they still needed to improve. When asked what categories they thought they made the most progress in, their answers were still on the aforementioned categories. To be noted, they also reported they had improved their **intensity** (loudness) in reading. They might have felt more confident in reading their stories aloud at the end of the experiment.

The participants showed positive **attitudes** toward this learner-centered approach to integrating digital storytelling into computer-assisted pronunciation learning. Only one out of the 29 students (i.e., the experiment groups) did not think more practice with the system using their own stories would result in pronunciation improvement. Some revealed that they loved practicing the stories they wrote on the CAPT system and listening to the pleasant intonation of the model teachers who recorded their stories. Moreover, they reported that they heard the intonation variation in the model teachers' recording of her story.

It was a thrilling experience to see that my own story was read by the model teacher. Her interpretation of my story made me feel again the feeling I had while writing the story, which was kind of embarrassing to me but it was exciting too. (CAPT-31)

Others wrote that practicing their own stories took them back to the time when the stories happened, and that they could express their feelings (e.g., being loved by parents) more easily and naturally while reading their own stories, which they considered conducive to their performance in intonation.

I could try to read with emotion because I wrote the story. (CAPT-03)

They also wrote that they were aware of how the model teacher expressed the tone of their story in the recording.

When I listened to how the teacher interpreted my story in her recording, I felt that my story was given a new life. (CAPT-29)

Some students revealed they could also feel their peers' emotions while practicing the stories they wrote.

I could feel the feelings of my peers [while they were writing their stories], a very special experience. (CAPT-13)

On the other hand, they wrote that they had experienced some frustration during the practice. For example, some of them considered the scores they got in the category of *intonation* disappointing to them while others wrote they felt challenges in practicing *pronunciation*. To CAPT-21, for instance, she revealed that *linking* was her pronunciation difficulty. CAPT-25 and CAPT-31 wished that they could have read their stories more fluently.

Conclusion

This study has demonstrated how students can be producers of content for computer-assisted pronunciation training and investigated the effect of integrating digital storytelling into computer-assisted pronunciation training. Unlike most studies, it used the learning materials produced by the learners themselves. The results showed that although the experiment groups (including the CAPT Group and the CAPT & Digital Storytelling Group) did not outperform the control group, they made significant progress in all the categories of evaluation (i.e., segmental *pronunciation*, *intonation*, *timing*, and *overall performance*). Furthermore, the experiment group made more progress in the categories of *intonation*, *timing* and *overall performance* than that of *pronunciation*. It is also interesting to see that the CAPT & Digital Storytelling Group had better performance in *pronunciation* while that of the CAPT Group was better in the rest of the categories.

While many studies of CAPT focused on the effectiveness of CAPT, very few studies laid emphasis on its material design, especially a learner-centered one. Practicing with the learning material they wrote on their own, students felt the ownership of the material. Some participants revealed they could feel their emotion and that of other peers' in their stories. As a result, they were able to practice more and read the stories with different emotions. These findings indicate that students can be producers of content for their pronunciation learning and that they may learn efficiently in a context that they create. Moreover, those students who made their own digital stories not only elevated their literacy in using state-of-the art technology but also improved their production of segmentals. Seeing the results of this study, language teachers can give students some autonomy in choosing learning materials to use, draw their attention to the expression of emotions during their practice with CAPT software, and have their students make digital storytelling to enhance their performance in segmental production.

The limitation of this study is that the number of participants in the CAPT & Digital Storytelling Group and the CAPT Group were small. Moreover, there should have been more participants in each experiment group so that the results of this study could be more representative. In addition, additional individual interviews and focus groups could have been held to collect more participants' perspectives about this integrated approach to CAPT.

References

Adams, W. (2003). Institute book of Readers Theatre: A practical guide for school, theatre and community. Chapel Hill, NC: Professional Press.

Bernard R. Robin (2009) Digital Storytelling: A Powerful Technology Tool for the 21st Century Classroom, Theory Into Practice, 47:3, 220-228, DOI: 10.1080/00405840802153916

Barrett, H. (2005). Storytelling in higher education: A theory of reflection on practice to support deep learning. Technology and Teacher Education Annual 2005. Charlottesville, VA: Association for the Advancement of Computing in Education, pages 1878-1883.

Busà, M. G. (2008), Teaching Prosody to Italian Learners of English: Working towards a New Approach. In Ecolingua. The Role of E-corpora in Translation and Language Learning, 113-126.

Carey, M. (2005). "Pronunciation pedagogy: Historical development and traditional classroom practice." Available at <http://www.ling.mq.edu.au/speech/phonetics/phonology/interlanguage/pronpedagogy.html>.

Castañeda, M. E. (2013). "I am proud that I did it and it's a piece of me": Digital storytelling in the foreign language classroom. CALICO Journal, 30(1), 44-n/a. doi:<http://dx.doi.org/10.11139/cj.30.1.44-62>.

Chun, D. M. (2002). Discourse intonation in L2. Amsterdam: Benjamins.

Gregori-Signes, C. (2014). 'Digital Storytelling and Multimodal Literacy in Education', Porta Linguarum, Vol. 22, junio 2014, 237-250.

Hafner, C. A., & Miller, L. (2011). Fostering learner autonomy in English for science: A collaborative digital video project in a technological learning environment. Language Learning & Technology, 15(3), 68-86. Retrieved from <http://llt.msu.edu/issues/october2011/hafnermiller.pdf>

Hincks, R & Edlund, J. (2009). Promoting increased pitch variation in oral presentations with transient visual feedback. Language Learning & Technology, 13 (3), 32-50.

Hişmanoğlu, M. (2005). Teaching English Through Literature. Journal of Language and Linguistic Studies, 1(1), 53-66.

Hwang, W-Y, Rustam Shadiev, Jung-Lung Hsu, Yueh-Min Huang, Guo-Liang Hsu & Yi-Chun Lin (2014). Effects of storytelling to facilitate EFL speaking using Web-based multimedia system, Computer Assisted Language Learning, 29:2, 215-241, DOI: 10.1080/09588221.2014.927367

Johnson, J. D. (2011). Special issue introduction. TESOL Journal, 2(2), 121-131.

Levis, J. M. & Grant, L. (2003). Integrating Pronunciation Into ESL/EFL Classrooms. TESOL Journal, 12 (2), 13-19.

LLab (2018). **MyET**. (Available at: <http://tw.myet.com/MyETWeb/PersonalizedPage.aspx>)

Meadows, D. (2003). "What is digital storytelling?". [Internet document available at http://www.photobus.co.uk/dstory_pages/what_dstory.html]

Miles, M., & Huberman, M. (1994). Qualitative data analysis (2nd ed.). London: United Kingdom.

Mueller, H. A. (2010). Developing Cued Pronunciation Readings for Latter-day Saint Missionaries Learning English. A selected project submitted to Brigham Young University in partial fulfillment of the requirements for the degree of Master of Arts.

Nielson, K. B. (2011). Self-study with language learning software in the workplace: What happens. Language Learning & Technology, 15(3), 110-129. Retrieved from <http://llt.msu.edu/issues/october2011/nielson.pdf>.

- Protea Textware. (2013). Connected Speech. (Available at <http://www.proteatextware.com.au/shopexd.asp?id=103&bc=yes>)
- Seferoglu, G. (2005). Improving students' pronunciation through accent reduction software. *British Journal of Educational Technology*, 36(2), 303-316.
- Silveira, R. (2002). Pronunciation Instruction, Classroom Practice, and Empirical Research *Linguagem & Ensino*, 5(1), 93-126.
- Strauss, A. L., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, California: Sage.
- Tanner, M. W., & Landon, M. M. (2009). The effects of computer-assisted pronunciation readings on ESL learners' use of pausing, stress, intonation, and overall comprehensibility. *Language Learning & Technology* 13, 51-61.
- Tsai P. H. (2006). Bridging pedagogy and technology: User evaluation of pronunciation oriented CALL software. *Australasian Journal of Educational Technology* 22 (3), 375-397.
- Tsai, P. H. (2015). Computer-Assisted Pronunciation Learning in a Collaborative Context: A Case Study in Taiwan. *The Turkish Online Journal of Educational Technology*, 14 (4), 1-13.

Cornelia Tschichold & Maha Alzahrani

Swansea University, Swansea, UK

c.tschichold@swansea.ac.uk

Replication? Open data? Yes, please!

Bio data



Cornelia Tschichold is a senior lecturer at Swansea University. She has worked on grammar checking and computational lexicography. Her current research interests include the acquisition of vocabulary and phraseology and computer-assisted language learning (CALL).



Maha Alzahrani is a post-graduate student at Swansea University. She has written an MA thesis on her replication of a CALL-related research paper.

Abstract

This conference's focus on open data comes at a time when replication studies are increasingly being recognized as necessary for confirming trends found in original research publications. Successful replications rely on transparency in terms of data and methodology. If a study is well-designed, transparent and open in its description, it can also serve as an excellent tool for beginning researchers to learn about the methodologies and types of data analysis typically used in a field. A study on vocabulary learning, for instance, needs the description of the tests in the published paper to be clear and detailed enough to either reuse the tests without any changes, or allow for the construction of a close equivalent. The example described in this presentation fulfills this requirement and serves to illustrate the core argument that replications can be invaluable tools for teaching as well as strengthening the research findings.

Conference paper

Over the last decade or so, calls for replication in Second Language Acquisition (SLA) research (Plonsky 2015, Mackey 2012, Porte 2012), and also more specifically in CALL (Chun 2012, Handley 2014, Smith & Schulze 2013) have become more frequent. Replication is seen as a tool to increase the reliability and generalizability of findings in SLA research. *Language Teaching* is one of the journals that now regularly publishes

replication studies; the journal in fact explicitly “invites original research articles reporting on replication studies” on its website, and it recently published a number of papers calling for replications, e.g. on formulaic sequences (Coxhead 2017 and Thomson, Boers & Coxhead 2017), and on task-based language teaching (Révész 2017), all with clear and detailed suggestions for approximate replications with relevant modifications to the original studies. The studies suggested as suitable candidates for replication were chosen not just because they are well-designed studies, but also because the methodology is described in sufficient detail and the tools used are accessible for any scholars interested in replicating the original studies. In the field of CALL, exact replications are not feasible (just like in the wider field of SLA), but even reasonably close approximations can be challenging to execute because of the fast-evolving nature of the technology at the heart of CALL (Chun 2012). The conflation of method and medium that we find in the many CALL studies that use a non-CALL control group rather than comparing to a different CALL context (Handley 2017) presents a further challenge. The most general obstacle to replication, however, is the frequent lack of detail in the reporting of a study.

The argument we want to make here is that replication is not only needed for strengthening the validity and reliability of research results in our field, replication is also more than merely useful for teaching purposes. The students who study SLA and CALL within an undergraduate or MA degree often intend to go into a teaching job, or are already teaching in some function. Among the benefits for students of replicating a good CALL study, we can see opportunities to learn about research methods, about critically reviewing literature, about typical effect sizes and to experience the challenges of drawing conclusions from published studies for a specific classroom situation. Not only are replication studies a useful method of confirming (or not) trends found in the results of earlier language learning studies, they are also excellent tools for learning about the methodologies and types of data analysis that are typically used in a field such as CALL. The experience of replicating a CALL study can therefore help future teachers to understand the published literature in our field and to draw the appropriate conclusions from this for their own teaching practice, even if their thesis remains the only piece of research they conduct before embarking on their teaching career.

When choosing which studies to replicate, openness and transparency of data are crucial elements to consider. What is needed for a study to be replicated by a student is for that study to be written in an accessible style and for the authors to be very open about their data and methodology. Students, as the novice researchers that they are, would often tend to take what is argued for in a published paper to be “the truth”, however biased or incomplete a picture of reality this is. Realistic and successful replications therefore rely on a considerable amount of transparency in terms of both data (not just results) and methodology in the original study.

To illustrate this point, let’s take the example of a study on vocabulary learning. The researcher has decided on a set of words, has identified the subjects to be used for the study and settled on the basic methodology with a pre- and post-test, and perhaps a delayed post-test, to measure vocabulary gains after a teaching intervention. This teaching intervention is the operationalization of a process that the research questions focus on. The description of the vocabulary tests in the published paper then needs to be clear and detailed enough to enable our student researchers to either re-use the tests without any changes, or allow for the construction of a close equivalent. The former is possible if a standard, publicly available vocabulary test such as the VST or Vocabulary Size Test (Nation & Beglar 2007) is used, or if the vocabulary test is published as part of the paper or otherwise made available by the authors. If this is not possible, or if the test needs to be modified for some reason, e.g. a different language pair is to be tested, the published paper should additionally include such information as the principles for choosing the test items and the distractors or translational equivalents, the reasons for excluding items and the exact scoring system applied for the analysis of the results.

The example discussed below fulfills this requirement of openness. In addition, the study described in Franciosi, Yagi, Tomoshige, & Ye (2016) has the advantage of avoiding the common problem of comparing a CALL vs. a non-CALL activity (Handley 2014). The new empirical data described below is from a replication of Franciosi et al (2016), which basically confirms the findings of that study, but with a markedly different learner group.

The original study

Franciosi, Yagi, Tomoshige, & Ye (2016) investigated the effects of a simple simulation game on long-term vocabulary retention in an EFL context. Recent research on games and foreign language learning has tended to explore high-tech 3D virtual worlds (Berns, Gonzalez-Pardo & Camacho, 2013, Kuhn 2018, Liou, 2012). These studies emphasise the optimal learning affordances provided by the sensory-rich experience of 3D games (Gee 2004). However, despite the educational advantages, these technologies can be impractical in many settings, as they require sophisticated technical capabilities, and also because teachers and students may need lengthy training sessions. Franciosi et al. (2016) claimed that technically simpler simulation games e.g. *Medical School*, *Energy City*, *Pandemic*, etc. are effective and accessible alternatives and can be adopted in most educational contexts with no need for a sophisticated computer infrastructure.

According to the authors, their quasi-experimental study used intact classes of language learners for the experimental and control groups and took a task-based approach. The simulation game *Third World Farmer* (freely available at 3rdworldfarmer.org) represented a meaning-focused communication task, and *Quizlet*, a free flashcard-based game, was used for form-focused tasks. Their study therefore compares two CALL contexts rather than a CALL vs. a non-CALL context, with the control groups using *Quizlet* for the entire time, while the experimental group switched to the game after half the time, thus keeping the total time on task identical for the two groups. The research was conducted using existing classes of Japanese learners of English ($n=162$) over the course of 14 weeks, indicating that the study can be practically applied or even replicated in real educational contexts. Results point to a small advantage for the group that played the simulation game in addition to using the electronic flashcards, an advantage that only became apparent in the delayed post-test. Thanks to the larger than usual number of learners involved (Lindstromberg & Eyckmans 2017) in the study, this study can still be seen as having produced an interesting result. Together with the transparency in the methodology, Franciosi et al.'s (2016) paper therefore seemed to be a suitable candidate for a replication.

The replication

In 2017, one of the authors replicated Franciosi et al.'s (2016) study as part of completing an MA in TESOL. The same simulation game (*Third World Farmer*) and the same methodology were used, with a slight modification to the list of target words and a modified pre-test designed to exclude the words known before the treatment. The study also included a standard vocabulary size test (VST) to measure the learners' receptive vocabulary knowledge prior to the treatment. Franciosi et al. (2016) did not include the VST, so there was no separate test of the participants' level of English word knowledge. The 196 participants in the replication study were 16-17 year-old female EFL learners (a younger age group than the learners in the original study) studying in secondary public schools in Saudi Arabia. All the learners had received the same formal English education over the previous six years. There was no significant difference between the experimental and the control group in terms of vocabulary knowledge.

The replication shows two modifications compared to the original study. First, the learners' English proficiency was tested prior to treatment, and all participants were therefore known to have a similar vocabulary size. Franciosi et al. (2016)'s participants possessed varying degrees of English proficiency. In our study, the students' average VST scores were approximately 900 lexemes in both control and experimental groups. Furthermore, some participants in the study by Franciosi et al. (2016) were familiar with

some of the words from the vocabulary list prior to the treatment. In the replication, all learners began the treatment with no knowledge of the target words. Despite markedly lower number of words learned, the general trend in the replication was the same, i.e. the experimental group had slightly better long-term results, a difference that only became visible in the delayed post-test.

The results from the replication can therefore be interpreted as confirming the (small) positive effects of using *Third World Farmer* on long-term vocabulary retention in addition to Quizlet. When comparing the success of vocabulary acquisition of the Japanese and the Saudi learners, we notice a significant difference between the scores of these two groups of learners on both the immediate and the delayed post-test. This may be due to a lower starting level of English proficiency, a lack of motivation, and a more negative attitude toward the English language among the Saudi students compared to the somewhat older Japanese students. Although the replication showed a low rate of vocabulary retention among the Saudi learners, we can nevertheless conclude that the results broadly support the findings from Franciosi et al. (2016) and confirm that using simulation games such as *Third World Farmer* in EFL classrooms is practical, effective, and beneficial for vocabulary acquisition.

Replications of CALL studies by students

The replication described above was made possible thanks to the clear description and the open data in the original paper, and needed only modest, principled modifications once a suitable and sufficiently large learner group had been identified. While it can be said that the replication produced a basically similar outcome to the original study, it also – of course – raised a number of new questions. The generally lower success of the Saudi learners compared to the Japanese learners obviously merits further investigation, and more replications of Franciosi et al.'s (2016) study could shed more light on this. It is not difficult to imagine that further replications could also produce results that do **not** confirm the long-term advantage for the gaming group, an outcome that may or may not be seen as desirable from a teaching point of view. In order to demonstrate the need for replications to novice researchers, a set of replications with varying results could be a very useful tool indeed. Students often want to see a good model, preferably also a contrasting poorer model for any task they are set, so a set of replications could provide the perfect basis for discussions of what makes a good research study, what kinds of variables need to be considered, and what to look for when critically reading research papers. Some of these arguments have naturally been made before, e.g. by Abbuhl (2012) and Fitzpatrick (2012). As Fitzpatrick (2012) describes in her chapter in Porte (2012), replications are an invaluable tool for training PhD students and have probably helped to make the Swansea part-time distance PhD in Applied Linguistics a successful programme. What we would like to argue for in this presentation are the use of replications as tools for teaching students at MA and undergraduate level as well as in PhD level studies. While these students are not normally in a position to do longer-term replication research, studies where the data collection occurs over a shorter timeframe are still good candidates for replication by novice researchers and an excellent alternative to the students constructing their own topic and research questions from scratch. What these studies need in order to allow for replication are mainly transparency and open data, research instruments that are freely available, and a good, clear description of the methodology employed. We believe that the field of CALL has now reached a level of maturity (as shown in the number of handbooks, encyclopedias and edited collections of papers in CALL) that makes such a push in replication studies possible.

References

- Abbuhl, R. (2012). Practical methods for teaching replication to applied linguistics students. In Porte, ed. (2012) 135-150.

- Berns, A., Gonzalez-Pardo, A., & Camacho, D. (2013). Game-like language learning in 3-D virtual environments. *Computers & Education*, 60 (1), 210–220.
- Chun, D.M. (2012). Replication Studies in CALL Research. *CALICO Journal* 29 (4), 591-600.
- Coxhead, A. (2018). Replication research in pedagogical approaches to formulaic sequences: Jones & Haywood (2004) and Alali & Schmitt (2012). *Language Teaching*, 51(1), 113-123.
- Fitzpatrick, T. (2012). Conducting replication studies: Lessons from a graduate programme. In Porte, ed. (2012) 151-170.
- Franciosi, S., Yagi, J., Tomoshige, Y., Ye, S. (2016). The Effect of a Simple Simulation Game on Long-Term Vocabulary Retention. *CALICO Journal* 33 (3) 355-379.
- Gee, J. P. (2004). *Situated Language and Learning: A Critique of Traditional Schooling*. New York: Routledge.
- Handley, Z. (2014). Constructing an evidence-base for future CALL design with 'engineering power': The need for more basic research and instrumental replication. *The EUROCALL Review* 22(2), 46-56.
- Handley, Z. (2017). Replication research in computer-assisted language learning: Replication of Neri et al. (2008) and Satar & Özdener (2008). *Language Teaching*, 1-13.
- Kuhn, J. (2018). Gaming. *The TESOL Encyclopedia of English Language Teaching*, ed. J. Lontas. Wiley. doi.org/10.1002/9781118784235.eelt0412
- Lindstromberg, S., & Eyckmans, J. (2017). The particular need for replication in the quantitative study of SLA: A case study of the mnemonic effect of assonance in collocations. *Journal of the European Second Language Association*, 1(1).
- Liou, H.-C. (2012). The roles of Second Life in a college computer-assisted language learning (CALL) course in Taiwan, ROC. *Computer Assisted Language Learning*, 25 (4), 365-382.
- Mackey, A. (2012). Why (or why not), when, and how to replicate research. In Porte, ed. (2012) 21-46.
- Nation, P. & Beglar, D. (2007). A vocabulary size test. *The Language Teacher* 31 (7), 9-13.
- Plonsky, L. (2015). Quantitative considerations for improving replicability in CALL and applied linguistics. *CALICO Journal* 32(2), 232-244.
- Porte, G., ed. (2012). *Replication Research in Applied Linguistics*. Cambridge UP.
- Révész, A. (2017). Replication in task-based language teaching research: Kim (2012) and Shintani (2012). *Language Teaching*, 1-11.
- Smith, B., & Schulze, M. (2013). "Thirty years of the CALICO Journal—Replicate, replicate, replicate". *CALICO Journal*, 30 (1) i-iv.
- Thomson, H., Boers, F. & Coxhead, A. (2017). Replication research in pedagogical approaches to spoken fluency and formulaic sequences: A call for replication of Wood (2009) and Boers, Eyckmans, Kappel, Stengers & Demecheleer (2006). *Language Teaching*, 1-9.

Claudio Vanhees, Mathea Simons & Vanessa Joosen

Universiteit Antwerpen, Antwerp, Belgium

claudio.vanhees@uantwerpen.be - mathea.simons@uantwerpen.be - vanessa.joosen@uantwerpen.be

Novels as data: effects of multimedia hyperlinks in fiction on reading motivation and immersion in adolescent readers

Bio data



Claudio Vanhees is a language teacher and a doctoral candidate at the Antwerp School of Education (University of Antwerp). His research focuses specifically on the role of technology in the reading process of adolescent learners and its impact on reading motivation and immersion.



Mathea Simons (supervisor of the project) is teacher educator at the Antwerp School of Education (University of Antwerp), more specifically in the field of language teaching. Her research interests are in teacher education and foreign language education.



Vanessa Joosen (co-supervisor of the project) specializes in English literature and children's literature studies at the Faculty of Arts (University of Antwerp). Her research interests include the construction of childhood, adulthood and old age in literature, and digital approaches to children's literature studies.

Abstract

Adolescents' reading habits of literary texts are the object of scientific and social concern. Due to the omnipresence of short, digital texts they would read fewer literary texts, be less motivated to do so, and consequently underperform (Goedseels et al., 2000).

Hypermedia fiction could address a specific reading audience, particularly young, reluctant readers (Tveit & Mangen, 2014). Our research project investigates the effects of multimedia hyperlinks on reading motivation and immersion. In this presentation, we will focus on the data collected and produced during our research. Several sets of pedagogical metadata are produced to support the learner and integrated in content for learning based on published and self-made materials. Particularly interesting challenges regarding the openness of the data concern the copyright on the different materials used and digital privacy while reading.

Conference paper

Introduction

"The only book they still read is Facebook", is a complaint often expressed by literature teachers. It reflects a social concern about the amount of paper books adolescents read nowadays, as opposed to often short, online, digital texts. The assumption that on-screen reading is hasty and superficial is widely shared (Carr, 2011; Van der Weel, 2011), but at the same time reading promoters such as Stichting Lezen (2012) and other researchers (James & De Kock, 2013a; Yokota & Teale, 2014) underline that digitization also offers new possibilities for literary reading in terms of narratology and reading motivation. They refer to new types of digital literary texts, such as hypermedia fiction. Hypermedia fiction is digital literary text composed of written, graphic, audio, video and animation elements which are hypertextually linked. Hypermedia fiction emerged from hyperfiction, which is non-sequential digital literary text, but solely composed of written words (Delany & Landow, 1991; Joyce, 1995; Landow, 1997). A typical characteristic of hyperfiction was that it 'branches and allows choices to the reader' (Mangen & Van Der Weel, 2015). Different degrees of reader participation were possible (Gutiérrez, 2014): from constructive hyperfiction (where the reader almost completely constructs the story and partly becomes its author) to exploratory hyperfiction (where the reader explores different pathways previously created by the author). Hypermedia fiction is a pronounced form of the latter type: it offers a linear story with hyperlinks that meets narrative conventions, such as continuity in time and space, a steady progression of the unfolding plot, and the social and psychological development of the characters (Bakker, 2015). The reader moves through the book and consults several types of supporting materials along the way using hyperlinks (Simons et al., 2014).

The arrival of tablet computers has added a user-friendly interface to the possibility to present literary works as 'enhanced' e-books that 'provide deeper, richer insight into an author's work' (James & De Kock, 2013b). Consequently, a digital version of a literary text can be supplemented with media, all of which can be accessed by the reader as he or she reads the primary text. These media can not only offer supporting information (e.g. word explanations), but also enrich the reading (e.g. with cultural background, music, literary or paratextual information). This way hypermedia fiction offers countless new possibilities, many of which have not yet been investigated. For one, adolescents' attitudes to hypermedia fiction have not been studied (technology acceptance model): which type and frequency of hyperlinks do they find desirable in digital literary texts? Moreover, it is unclear whether hypermedia fiction influences two essential elements of the reading process of literary texts, i.e. reading motivation on the one hand, and (story world) immersion on the other. Reading motivation can be defined as 'the individual's personal goals, values, and beliefs with regard to the topics, processes, and outcomes of reading' (Guthrie & Wigfield, 2000, p. 405). A high reading motivation is crucial for reading proficiency, which is strongly associated with improved academic performance (*ibid.*). When it comes to fiction, reading motivation diminishes during the first years of secondary education (Goedseels et al., 2000). Therefore, we investigate whether hypermedia fiction can boost reading motivation within this specific age group. Critics point out that reading motivation is gendered and determined by pupils' class, education, intelligence and level of schooling. Digital texts and hypermedia can bring variation to

reading materials and enrich existing or traditional types of reading (New London Group, 1996; Yokota & Teale, 2014). In doing so, they can address certain target groups better, e.g. boys vs. girls (Picton, 2014), reluctant readers (Tveit & Mangen, 2014) or children from low-literate families (Vavasseur, Crochet & Dempster, 2016).

In addition, the reading process is also determined by reading skills, which regard the technical and comprehensive reading of text (a.o. Mol, 2010). Comprehensive reading implies both understanding and critically handling information or a story (Simons et al., 2015). Previous research (a.o. National Reading Panel, 2000; Vaughn & Klinger, 2004) names as effective reading strategies the use of graphic and semantic organizers, the generation of questions, and the recognition of textual structure. Literary reading, moreover, requires not just comprehensive but also intensive reading. It is defined as 'the active process of thoughtful and deliberate reading carried out to enhance one's comprehension and enjoyment of a text' (Birkerts, 1994). Story world immersion, also named transportation (Gerrig, 1993), involvement (Klimmt & Vorderer, 2003), or absorption (Tellegen & Frankhuisen, 2002) plays an important role in this process, as it marks one of the most intimate ways in which reader and book interact. Immersion can be defined as the cognitive process that unfolds during the act of reading and in which 'the reader dives into the sea, reaches foreign lands (transportation), gets caught (seized by the story), and loses contact with all other realities (to get lost in a book)' (Ryan, 2001, p.93). Due to its transcendent character, the reader experiences unity between himself and the story world the writer evokes (Bakker, 2015). This is precisely the type of reading that researchers (e.g. Carr 2011) find to be slowly but steadily disappearing due to technological advancements and short, online, digital texts—a process they find deplorable because they consider immersion as one of the main goals of reading socialisation (Stichting Lezen, 2012).

The aforementioned short, online digital text types are eagerly adopted by one age group in particular, twenty-first century adolescents. They are surrounded by technology that brings the world to their fingertips and many of them since they were babies (Derene, 2013). The integration of technology into their daily reading and into reading instruction at school has the potential to change the attitudes of unmotivated readers (Maynard, 2010), especially among those with reading difficulties (Larson, 2010; Picton, 2014), which leads Van Coillie (2014) to claim that the most efficient way to connect those 'digifans' to literature is by means of digital media such as e-readers or tablets. This is where hypermedia fiction comes into play. It may not only bridge the gap between literature and technology, but might even play a role in their reading motivation and story world immersion. Hypermedia offers possibilities to add hyperlinks to digital literary texts, which can respond to the required skills on the one hand (e.g. by offering word explanations, cultural background information, literary indications etc. to facilitate understanding) – elements that might influence story world immersion – and to reading motivation on the other.

Research questions

Considering the possible effects of hypermedia fiction on the reading process, the central research question reads as follows: Can hypermedia fiction enhance the reading motivation of adolescent readers and deepen their reading process (story world immersion)?

The first, meta-reflective stage of the project invites adolescent readers and their teachers to consider the potential digital enhancement of their reading experience. It is matched with:

- RQ1: Which types of hyperlinks do adolescent readers and their teachers find desirable in literary texts, and at what place and frequency?

The second stage of the project focuses on the reading process of hypermedia fiction itself and investigates three underlying variables i.e. the reader profile, the hyperlinks and the literary genre:

- RQ2a: What influence does the reader profile (gender, SES-profile, reading habits) have on reading motivation and immersion in hypermedia fiction?
- RQ2b: What influence does the hyperlink type and placement (YouTube videos, encyclopedia pages; (ir)relevant content; word explanations, cultural background, literary indications, paratextual information) have on reading motivation and immersion?
- RQ2c: What influence does the literary genre of the book have on reading motivation and immersion in hypermedia fiction?

Methodology

The research is based on two consecutive studies and is conducted in the first grade of Flemish secondary education (A-stroom) on two respondent groups: (a) 12 to 13-year-old pupils, an age group characterized by a drop in reading motivation (Goedseels et al., 2000) but quite familiar with digital media, and (b) their teachers of Dutch. Five novels are used as study material, which are imposed reading. The novels are published in Dutch, the language in which pupils at this level are expected to read most. The novels are selected on the basis of the following criteria: acceptable length; sufficient possibilities to add hyperlinks; level of difficulty that matches the target audience; diversity of topics and genres, which results in the following list: (a) historical novel (*De hond van Roosevelt*); (b) adaptation (*Veldslag om een hart*); (c) problem novel (#*Selfie*); (d) fantasy novel (*De schaduw van Skellig*); (e) realism with unreliable narrator (*Zwarte zwaan*).

Study 1 investigates which hyperlink types pupils and teachers find desirable and at which frequency and location (RQ1). Pupils (N=120; 24 per novel) and teachers (N=60; 12 per novel) are first informed about the research aim and hyperlink types (i.e. word explanations, cultural, historical, geographical background information, literary information and stylistic information). They are also invited to reflect on other possible types of hyperlinks that might be desirable. After a preliminary pilot study with one class and one experimental group in order to test the research design and refine the procedures, they each read one of the five novels on paper and mark the instances where they would like to have hyperlinks and specify in shorthand which types would be beneficial to their reading. This results in 180 annotated novels. The corpora, i.e. the annotated paper copies, are analysed (types of hyperlinks, frequency, link between the frequency of 'desired' hyperlinks and the plot development). Subsequently two focus groups (one with pupils; one with teachers) are organized to investigate how the participants experienced adding their desire for hyperlinks and whether differences arise between the hyperlink types each actor 'needs'. Study 1 is preceded by a teacher survey on reading motivation and digital literacy and a measurement of the pupils' reading motivation and competencies, in which information about the learner is gathered in order to contextualize and personalize the reading process in the next phase of the research. However, the openness and the extent of the latter data are limited by privacy and ethical regulations, which has an effect on the content and length of the surveys created for both studies. Study 1 is currently in progress and during the presentation preliminary conclusions on the research questions will be drawn, with special attention for issues related to the conference topic i.e. data collection, analysis and storage.

Study 2 builds further on the results of Study 1, but focuses on the reading of hypermedia fiction itself. In a first step, hyperlinks are added to the digitized versions of the novels. They are visibly marked, their content is related to the story (Smeets & Bus, 2013) and they are applied in the amount which facilitates immersion, as identified by De Jong & Bus (2002). In order to do so, several sets of pedagogical metadata are produced with a view to supporting the learner (e.g. hyperlink glosses) and integrated in content for learning, i.e. the hypermedia novels created by the researcher, which are partly

based on published materials (the original paper novels) alongside self-made materials (hyperlinks to sound files and knowledge clips) and other published materials (hyperlinks to authentic web documents or extracts from published materials). During our presentation, we will discuss the interesting challenges regarding the openness of the latter data i.e. the copyright on the published materials used (in the content for learning as well as in the pedagogical metadata) and regarding digital privacy for the reader, who no longer exclusively reads in an offline environment, but, particularly in the aforementioned case of hyperlinks to authentic web materials, can now be tracked online while reading a novel connected to pedagogical metadata on the internet.

The novels will consequently be read by 180 adolescents in five so-called tablet schools in order to ensure reading tool availability and limit tool variety. The study comprises of three experiments, which are preceded by a teacher survey and a premeasurement of the pupils' reading motivation and competencies. Each experiment requires a four week period. The experiments are conducted after a preliminary pilot study with one class and one experimental group in order to test the research design and refine the procedures. Each class group is divided into three groups of pupils based on the collected information about the learner (gender, SES-profile and reading habits). During the first experiment one group of pupils acts as the experimental group (EG) and reads the hypermedia novel while the others, who read the novel on paper and on tablet without hyperlinks, act as control groups (CG). Subsequently the roles are inverted, which provides us with the following research design:

Pupil group	Experiment 1	Experiment 2	Experiment 3
1	Book A hypermedia fiction (EG)	Book B on paper (CG)	Book C tablet without hyperlinks (CG)
2	Book A tablet without hyperlinks (CG)	Book B hypermedia fiction (EG)	Book C on paper (CG)
3	Book A on paper (CG)	Book B tablet without hyperlinks (CG)	Book C hypermedia fiction (EG)

The time lapse between the experiments constitutes at least one month. In between experiments, as well as after experiment 3, quantitative as well as qualitative data are collected in order to investigate the influence of the reader's profile (RQ2a), the effect of different types of hyperlinks (RQ2b) and the literary genre (RQ2c) on reading motivation and story world immersion. Information about the reading process is gathered on two different levels. Quantitative data i.e. click behaviour and measurements a.o. by means of the Story World Absorption Scale (SWAS), which refines and improves existing scales on immersion in order to specifically measure different aspects of absorption in the story world of a textual narrative (Kuijpers, 2014) and the Motivations for Reading Questionnaire (MRQ), which maps the distinct dimensions of reading motivation in young adolescent readers (Wigfield et al., 2004) are statistically analysed. Qualitative data are gathered by focus groups (1 per school; +/- 5 pupils) and semi-structured interviews with teachers; subsequently verbatim transcribed, checked on validity (a.o. member check; Johnson, 1997) and analysed with NVivo.

Preliminary conclusions

The current presentation reports on a study in progress. At this time, study 1 is being carried out in schools all over the country, so we will mainly focus on specific challenges related to the data collection of this study as it has to comply with several privacy and ethical regulations, especially in case of the adolescent respondents. Additionally, we will discuss study 2 in which literary novels are to be transformed by the researchers into hypermedia fiction based on the results from study 1. This transformation implies specific methodological challenges taken into account that in this process published materials, the original paper novels, are enriched by self-made materials (hyperlinks to sound files and knowledge clips) and other published materials, such as hyperlinks to Authentic Web Documents and to extracts from other published materials. The openness of the latter

data is therefore shaped by copyright regulations on the published materials used as well as by digital privacy regulations for the readers, who now read in an online environment, as opposed to traditional offline reading.

Research on hypermedia fiction is, in view of its recent character, scarce – especially when it comes to reading motivation and immersion, two crucial factors as to adolescents' engagement with books. Research by Chiong, Ree, Takeuchi & Erickson (2012) on engagement with regard to print books, basic e-books and enhanced e-books, for example, did not measure story world immersion and focused only on primary school children, an age group less marked by a drop in reading motivation. Garrett-Rucks, Howles & Lake (2015) studied hypermedia texts compared to traditional print texts but measured reading comprehension in the foreign language (L2) and did not investigate reading motivation nor immersion. Palilonis & Bolchini (2015) explored the nature of active reading in the tablet environment, but focused specifically on tablet textbooks, and on reading comprehension rather than on the enjoyment of the text. Long & Szabo (2016) explored the effects of e-readers and 'traditional' e-books on 10 to 11 year old students' reading motivation, attitude and comprehension during guided reading, but did not include 'enhanced' e-books or hypermedia fiction and consequently did not explore the role of hyperlinks in the reading process. Only Bakker (2015) has specifically explored hypermedia fiction and its effects on immersion and reading motivation, but his study was a small-scale experiment with university students, which was limited in terms of time, respondents and design. He concluded that especially reluctant readers benefit from hypermedia fiction, as both reading motivation and story world immersion levels increased. Van Coillie (2014) and Bakker (2015), among other researchers, stress the need for more research on adolescents' digital reading, as it is essential in order to verify the impact on their reading motivation and immersion and to reveal the differences in reading experience and perception on paper and on screen, all of which are extensively addressed in this study.

References

- Bakker, N. (2015). Hypertekstfictie op herkansing. In D. Schram (Ed.), *Hoe maakbaar is de lezer?* Stichting Lezen.
- Birkerts, S. (1994). *The Gutenberg Elegies: The Fate of Reading in an Electronic Age*. Faber and Faber.
- Carr, N. (2011). *Het ondiepe. Hoe onze hersenen omgaan met internet*. Maven Publishing.
- Clemens, J. (2014). Eindrapport Survey onlinegeletterdheid. Kennisnet.
- Chiong, C., Ree, J., Takeuchi, L. & Erickson, I. (2012). Print books vs. E-books. In The Joan Ganz Cooney Center at Sesame Workshop. (Vol. 15, p. 2013).
- Delany, P. & Landow, G. (1991). *Hypermedia and Literary Studies*. MIT Press.
- Derene, G. (2013). Raising a tech savvy kid. *Popular Mechanics*, 190, 116.
- Gerrig, R. (1993). *Experiencing narrative worlds*. Yale University Press.
- Goedseels, E., Vettenburg, N. & Walgrave, L. (2000). *Vrienden en Vrije Tijd*, In: De Witte et al. (Eds.), *Jongeren in Vlaanderen: gemeten en geteld*. Universitaire Pers.
- Garrett-Rucks, P., Howles, L. & Lake, W. (2015). Enhancing L2 reading comprehension with hypermedia texts: student perceptions. *CALICO Journal*, 32(1), 26.

- Guthrie, J. & Wigfield, A. (2000). Engagement and motivation in reading. In Kamil et al. (Eds.), *Handbook of reading research* (3rd. ed., pp. 403–422). Longman.
- Gutiérrez, A. (2014). La ficción progresiva de Leonardo Valencia, o el autor somos todos. *Bulletin of Spanish Studies*, 91(4), 575-594.
- Hahnel, C., Goldhammer, F., Naumann, J. & Kröhne, U. (2016). Effects of linear reading, basic computer skills, evaluating online information, and navigation on reading digital text. *Computers in Human Behavior*, 55, 486-8500.
- James, R. & de Kock, L. (2013a). Deepening the ‘Shallows’: The Fate of Reading in an Electronic Age, Revisited. *Current Writing: Text and Reception in Southern Africa*, 25(1), 4-19.
- James, R. & de Kock, L. (2013b). The digital David and the Gutenberg Goliath: The rise of the ‘enhanced’e-book. *English Academy Review*, 30(1), 107-123.
- Johnson, R. (1997). Examining the validity structure of qualitative research. *Education*, 118(2), 282-292.
- Jong, M. de & Bus, A. (2002). Quality of book-reading matters for emergent readers. *Journal of Educational Psychology*, 94(1), 145-155.
- Joyce, M. (1995). *Of Two Minds: Hypertext Pedagogy and Poetics*. University of Michigan Press.
- Klimmt, C. & Vorderer, P. (2003). Media psychology ‘is not yet there’. *Presence: Teleoperators and Virtual Environments*, 12(4), 346-359.
- Kuijpers, M. (2014). Exploring absorbing reading experiences: Developing and validating a self-report scale to measure story world absorption. *Scientific Study of Literature*, 4(1), 86-119.
- Landow, G. (1997). *Hypertext 2.0*. J.Hopkins University Press.
- Larson, L. (2010). Electronic reading workshop: Beyond books with new literacies and instructional technologies. *Journal of Adolescent and Adult Literacy*, 52, 121–131.
- Long, D. & Szabo, S. (2016). E-readers and the effects on students’ reading motivation, attitude and comprehension during guided reading. *Cogent Education*, 3(1), 1197818.
- Mangen, A. & Weel, A. van der (2015). Why don’t we read hypertext novels? *The International Journal of Research into New Media Technologies*.
- Mayer, R. (2009). Cognitive Theory of Multimedia Learning. *Learning and Instruction*, 13, 125-139.
- Maynard, S. (2010). The impact of e-books on young children’s reading habits. *Publishing Research Quarterly*, 26, 236-248.
- Mol, S. (2010). *To Read or Not to Read*. Universiteit Leiden.
- National Reading Panel (2000). *Teaching children to read*. NICHHD.
- New London Group. (1996). A pedagogy of multiliteracies. *Harvard Educational Review*, 66(1): 60-92.

- Palilonis, J. & Bolchini, D. (2015). Active reading behaviors in tablet-based learning. *Journal of Educational Multimedia and Hypermedia*, 24(3), 235-261.
- Picton, I. (2014). The Impact of eBooks on the Reading Motivation and Reading Skills of Children and Young People: A Rapid Literature Review. National Literacy Trust.
- Ryan, M. (2001). Narrative as virtual reality: Immersion and interactivity in literature and electronic media. J. Hopkins University Press.
- Schunk, D. (2000). Learning theories: an educational perspective. Upper Saddle River, Prentice-Hall.
- Shadish, W., Cook, T. & Campbell, D. (2002). Experimental and Quasi-Experimental designs for Generalized Causal Inference. Boston, MA, USA: Houghton Mifflin.
- Simons, M., T'Sas, J. & Mommaerts, M. (2014). Leesplezier en e-hype: good practices in(ge)beeld en ingezet. Universiteit Antwerpen.
- Simons, M., Daemen, K. & Hiel, F. (2015). Mediawijsheid en tekstbegrip aanbrengen: kan (K)ik dat ook digitaal? Universiteit Antwerpen.
- Smeets, D. & Bus A. (2013). Picture storybooks go digital: Pros and cons. In S. Neuman, L. Gambrell & C. Massey (Eds.), Quality reading instruction in the age of common core standards (pp. 176-189). IRA.
- Stichting Lezen. (2012). Samen werken aan een sterke leescultuur. Amsterdam.
- Tellegen, S. & Frankhuisen, J. (2002). Waarom is lezen plezierig? Stichting Lezen Reeks 2. Eburon.
- Tveit, A. & Mangen, A. (2014). A joker in the class: Teenage readers' attitudes and preferences to reading on different devices. *Library & Information Science Research*, 36, 179-184.
- Vancoillie, J. & Raedts, M. (2014). Zijn digikids nog boekenbeesten? Stichting Lezen.
- Vavasseur, C., Crochet, F., Dempster, S., & Sara, M. (2016). The Impact of Digitally Enhanced Reading Interventions on Struggling Readers and Teacher Education Candidates. *Open Journal of Social Sciences*, 4(11), 97.
- Vaughn, S. & Klinger, J. (2004). Strategies for struggling second-language readers. In T.L. Jetton and J. A. Dole (Eds.), Adolescent literacy research and practice (pp. 183-209). Guilford.
- Weel, A. van der (2011). Changing our textual minds. Towards a digital order of knowledge. Manchester University Press.
- Wigfield, A., Guthrie, J., Tonks, S., & Perencevich, K. (2004). Children's motivation for reading: Domain specificity and instructional influences. *Journal of Educational Research*, 97, 299-309.
- Wigfield, A., Guthrie, J. & Perencevich, K. (2008). Role of reading engagement in mediating the effects of reading comprehension instruction on reading outcomes. *Psychology in the Schools*, 45, 432-445.
- Yokota, J., & Teale, W. (2014). Picture books and the digital world. *The Reading Teacher*, 67(8), 577-585.

Serge Verlinde, Jordi Heeren & Nathalie Nouwen

KU Leuven, Leuven, Belgium

{serge.verlinde, jordi.heeren, nathalie.nouwen}@kuleuven.be

CALL and learning analytics hand in hand: a case study

Bio data



Serge Verlinde is Professor of French for Specific Purposes (Business French, Legal French) and Director of the Leuven Language Institute (KU Leuven). His main research interests are corpus linguistics, pedagogical lexicography and CALL (Computer-assisted language learning).



Jordi Heeren is research associate and lecturer Academic Dutch at the faculty of Social Sciences. His main research interests are language testing, writing research and academic literacy skills.



Nathalie Nouwen is lecturer French for Specific Purposes at the faculties of Law and Social Sciences.

Abstract

Whereas French used to be the first second language in Flanders, it has now become the first foreign language. As a result, more and more higher education students whose curriculum includes a compulsory French course fail to meet the required standard.

In this article, we present PAZAPA (pas à pas: step by step), an online tool designed to help students fill gaps in their basic knowledge of French grammar. Using learning analytics (LA), we transformed a traditional online CALL environment, combining tests and exercises, into a powerful tool which not only makes it possible to identify at-risk students but also to address each student's specific language problems, compare their level to that of their peers and encourage regular practice.

Conference paper

Introduction

Whereas French was traditionally the first second language in Flanders, it has now become the first foreign language. Students' active language skills no longer reach a very high proficiency level (Verhaegen 2013), an observation confirmed by numerous testimonies in the press by employment sector representatives. Research also shows that despite extensive formal instruction in French in secondary school, adolescents' attitudes towards French are less positive than, for example, towards English (Dewaele, 2005). As a result, more and more higher education students whose curriculum includes a compulsory French course (e.g. faculty of Economics, Law, Social Sciences, but also in teacher training programmes) do not pass their French exam. At KU Leuven, more than 2000 bachelor students may face this problem.

Previous studies have shown how learning analytics may help to identify those at-risk students by combining data from a Learning Management System (LMS) and student information (Arnold and Pistilli 2012, Bainbridge et al. 2015, Jayaprakash et al. 2014). This would allow institutions to assist at-risk students even before grades are assigned. As Bainbridge et al. (2015, p.258) point out, "a grade is an indicator of how a student is doing, but it gives no information on why a student is performing at that level". Learning analytics provide teachers with a means to track and flag up at-risk students, and to search for ways to improve retention. In this article, we discuss the development of a predictive model in a first-year university French course. Section 1 outlines the context of our case study and describes the data used to develop the model. Section 2 presents the model we built to identify at-risk students. In Section 3, we briefly discuss how this model was translated into practice. Section 4 presents some further developments linked to the use of learning analytics to monitor the language acquisition process.

Context of the case study and available data

From 2015 to 2017, 1745 first-year students of Law, Business Engineering and Applied Economics at KU Leuven took a compulsory French course as part of their study programme. To build a model that could predict their achievement, we collected data for a limited set of student background characteristics that are known predictors of achievement for first-year students. Several studies show that students' educational programme prior to university entry and their average grade in secondary school are strong predictors of academic success (Declercq & Verboven 2010, Lacante et al. 2001, Rombaut et al. 2006). We also included the number of hours of French and Mathematics taken in secondary school, and asked students to assess their own level of French (with a score between 0 and 10).

To these data, we added information about students' learning trajectories contained in the log files of the PAZAPA learning environment. PAZAPA (pas à pas: step by step) has been designed to help students fill gaps in their basic knowledge of French grammar. The learning environment consists of an initial C-test followed by a series of exercises on 20 grammar topics. The C-test is based on authentic newspaper texts in which alternate words miss half of their letters. Because of this fixed-ratio deletion, the C-test is claimed to be a valid measure of general language proficiency in the target language (Klein-Braley, 1985). Research has demonstrated that the C-test is able to assess knowledge of lexical and grammatical elements while also drawing on textual competence (Read, 2000). Item analyses showed item difficulty and item discrimination to be sufficient and the reliability of the test to be high (Kuder-Richardson 20: .92).

After taking the C-test, students had to complete a series of compulsory exercises on 20 basic grammar topics, obtaining a minimum score on each topic before moving on to the next one. All exercises were of the 'fill in the blank' type with personal feedback on errors. The exercises were also adaptive, as a second series of exercises is suggested by

the system based on the mistakes made in the first series. This adaptive learning system aims to remediate specific grammar problems each student might have.

A model for identifying at-risk students

In order to correctly identify at-risk students, descriptive data are not enough. A logistic regression on the likelihood that students would pass their French exam was performed to ascertain the effects of students' native language, their average grade in secondary education (SE) and the particular track taken in secondary school. In Flanders, the secondary school system offers four main tracks (Department of Education and Training, 2008). The general (academic) track provides a broad basis to prepare students for higher education. Since the majority of incoming students had completed this general track prior to entering university, these students were divided into four categories, based on their predictive value as determined by Rombaut et al. (2006) and Declerq & Verboven (2010) (SE1-4). The three other educational tracks, i.e. the arts track, the technical track, which is technical/theoretical, and the vocational track, which prepares students for a specific occupation, were aggregated into one group because of the low number of participants (SE 5). A small subset of students indicated 'other' when asked about their educational background (SE 6).

Apart from the educational track completed in secondary school, high prior achievement is also considered to be a strong predictor of academic success (Pinxten et al. 2014). In Flanders, students do not receive an official high school GPA, so we asked them what their average high school score (expressed in %) was. Lacante et al. (2001, 255-56) found a significant relation between the total score obtained in higher education and students' rank in class. In addition, the self-assessment score for French proficiency and the score obtained on the C-test were added to the model.

Students' average grade in secondary school, the score obtained on the C-test, the self-assessment score for French proficiency and the type of pre-university education were all found to be statistically significant. The self-assessment, the average secondary school grade and the C-test score were associated with a higher likelihood of successfully completing the French course [OR = 1.349, 1.100 and 1.044, respectively]. The educational program completed in secondary school compared to SE1 as the baseline was associated with a lower likelihood of success, especially for SE5 and SE6 [OR = 0.416 for SE2, 0.376 for SE3, 0.185 for SE4, 0.017 for SE5 and 0.026 for SE6 or 'other']. Native language and hours of French and Mathematics were not significant predictors in this model.

Predictor	B	S.E.	Wald	df	Sig.	Exp(B)
Average % in SE	.096	.010	98.114	1	.000	1.100
C-test score (%)	.043	.005	80.721	1	.000	1.044
Self-evaluation score (/10)	.299	.059	25.929	1	.000	1.349
Hours of French in SE	-.186	.110	2.881	1	.090	.830
Hours of Math in SE	.025	.053	.220	1	.639	1.025
Native language = French	-.035	.614	.003	1	.954	.965
Native language = Other	-.184	.294	.393	1	.531	.832
Program SE (SE 6)	-3.661	.998	13.461	1	.000	.026
Program SE (SE 5)	-4.082	.689	35.125	1	.000	.017
Program SE (SE 4)	-1.688	.243	48.355	1	.000	.185
Program SE (SE 3)	-.979	.214	20.863	1	.000	.376
Program SE (SE 2)	-.876	.203	18.579	1	.000	.416
Constant	-8.767	.884	98.307	1	.000	.000

Table 1. Output of the binary logistic regression (Nagelkerke R²:.42; overall percentage correct: 75.8)

Building on these results, we decided to create a multiple variable by scoring every student on the relevant variables mentioned above:

- Default value = 1
- For C-test: +2 if score <=40 and +1 if score <=50 (Law and Applied Economics students only)
For this test, students of Business Engineering and Applied Economics with a high score on the test (>70 and >60, respectively) got a +1 penalty because they underperform for their final exam.
- For general secondary education: +2 (Humanities); +1 (Languages without Latin) (Law and Applied Economics students only)
- Self-evaluation: +2 (score from 0 to 4); -1 (score from 8 to 10)

In this scheme, every student obtained a score between 0 (we believe the student meets all conditions to successfully complete the French course) and 7 (the student shows all characteristics of a potential at-risk student). Using this combined variable, we divided students into three groups: an at-risk group with a score between 4 and 7, a medium-risk group with a score of 2 or 3, and a low-risk group with a score of 0 or 1. See below for detailed data for the Law students (academic years 2015-2016 and 2016-2017).

Law	2015				2016			
	Fail		Pass		Fail		Pass	
exam ►	n	%	n	%	n	%	n	%
7	2		0		3		1	
6	5		0		4		0	
5	9		1		5		3	
4	23	88.64% $\Sigma=39$	4	11.36% $\Sigma=5$	25	78.72% $\Sigma=37$	6	21.28% $\Sigma=10$
3	28		19		30		19	
2	33	55.45% $\Sigma=61$	30	44.55% $\Sigma=49$	50	56.34% $\Sigma=80$	43	43.66% $\Sigma=62$
1	39		142		28		133	
0	3	19.72% $\Sigma=42$	29	80.28% $\Sigma=171$	3	16.67% $\Sigma=31$	22	83.33% $\Sigma=155$
Σ	142	38.69%	225	61.31%	148	39.47%	227	60.53%

Figure 1. Pass-fail rates of three categories based on the predictive model

In the high-risk group, approximately 80% of all Law, Business Engineering and Applied Economics students failed their French exam, while, conversely, students in the low-risk group were predominantly successful, with pass rates of 75.4%, 81.8% and 82.96% in Applied Economics, Law and Business Engineering, respectively. The success rate of the large medium-risk group was about 50/50.

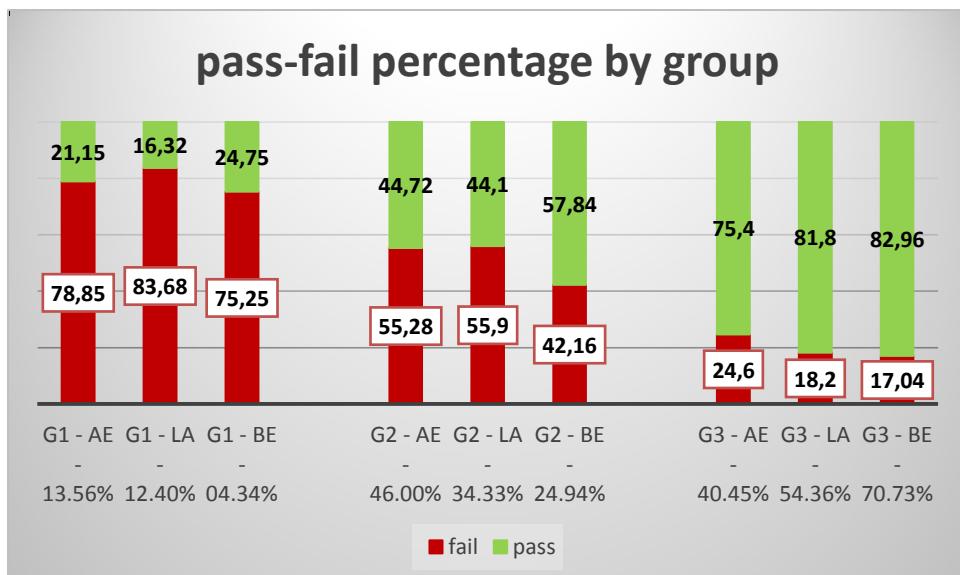


Figure 2. Pass-fail rates of three categories based on the predictive model

As shown by Figure 2, the total number of students in each group varies strongly: only 4.34% of Business Engineering students may be considered to be at-risk students (G1 – BE) compared with 13.56% of the Applied Economics students (G1 – AE). The majority (70.73%) of the Business Engineering students (G3 – BE) are likely to pass their French exam without major problems; for Applied Economics students, this is true only for 40.45% (G3 – AE).

Learning analytics are about learning

Consistent with Gašević's warning (Gašević et al., 2015), the challenge lies in turning the insights provided by data analysis into practice. We therefore plan a series of measures to support students. Immediately after the initial test, organized at the start of the academic year, at-risk students (group 1 and 2) will receive an email as an early alert intervention (Bainbridge et al. 2015: 258), warning them that the French course will require (very) serious effort. The message is worded as positively as possible: it not merely warns the (most) at-risk students, but also contains advice both on which exercises they should start with and on the number of times they should expect to do the exercises before reaching a threshold score. The difficulty level of the exercises is easily computable from the log files of the PAZAPA learning environment. Of course, the email also urges the at-risk students to get started as soon as possible, as we know from the log files that, on average, an at-risk student starts practising a month later than the best students.

Student follow-up during the academic year allows us to monitor the progress made by each individual student. Students who do not regularly use the learning environment receive an automatically generated email twice a year to remind them of the need for practice. In this way, we try to impact their behaviour.

All data are aggregated in various dashboards for teachers and students, showing at a glance all relevant information and actions to be undertaken.

Further developments

Learning analytics do not only enable teachers to monitor students' progress. A thorough analysis of log files may reveal specific grammatical pitfalls which can be tackled (again) in class. It is even possible to generate individualised tests to help students prepare for exams.

As we continue to record data, we will be able, year after year, to confirm the validity of our model. Possibly, we will have to adapt it in order to maintain the 20/80,50/50 and 80/20 pass-fail rate, which may be considered as satisfactory, unless new insights could help us to further optimize this rate.

At present, it is impossible to say whether this approach, including learning analytics and an adaptive learning environment, leads to a higher success rate for the French course at the end of the year. However, we do observe that students show greater involvement, which should have a positive impact on the continuous assessment scores for this course.

References

Arnold, K. E., & Pistilli, M. D. (2012). Course signals at Purdue: using learning analytics to increase student success. In Proceedings of the 2nd International Conference on Learning Analytics and Knowledge. New York, NY, USA: ACM. 267-270.

Bainbridge, J., Melitski, J., Zahradník, A., Lauría, E. J. M., Jayaprakash, S., & Baron, J. (2015). Using Learning Analytics to Predict At-Risk Students in Online Graduate Public Affairs and Administration Education. *Journal of Public Affairs Education*, 21(2), 247-262.

Declerq, K., & Verboven, F. (2010). Slaagkansen aan Vlaamse universiteiten – tijd om het beleid bij te sturen? [Success rate at Flemish universities – time to adjust the policy?]. Leuven: Centrum voor economische studieën, KU Leuven. Retrieved from <http://www.classicavlaanderen.be/informatie/cijfermateriaal/slaagkansen.pdf>

Department of Education and Training. (2008). Education in Flanders. A broad view of the Flemish educational landscape. Brussels: Agency for Educational Communication.

Dewaele, J. (2005). Sociodemographic, Psychological and Politicocultural Correlates in Flemish Students' Attitudes towards French and English. *Journal of Multilingual and Multicultural Development*, 26(2), 118-137. DOI: 10.1080/01434630508668400

Gašević, D., Dawson, S. & Siemens, G. (2015). Let's not forget: Learning Analytics are about Learning. *TechTrends* 59(1), 64-71.

Jayaprakash, S., Moody, E., Lauría, E., Regan, J., & Baron, J. (2014). Early Alert of Academically At-Risk Students: An Open Source Analytics Initiative. *Journal of Learning Analytics*, 1(1), 6-47.

Klein-Braley, C. (1985). A cloze-up on the C-test: a study in the construct validation of authentic tests. *Language Testing* 2, 76-104.

Lacante, M., De Metsenaere, M., Lens, W., Van Esbroeck, R., De Jaeger, K., De Coninck, T., Gressens, K., Wenselaer, C., & Santy, L. (2001). Drop-out in het eerste jaar hoger onderwijs. Onderzoek naar de achtergronden en motieven van drop out in het eerste jaar hoger onderwijs [Drop-out in the first year in higher education. Research into the reasons and motives of drop-out in the first year of higher education]. Final report OBPWO 98.11. Leuven-Brussel: Katholieke Universiteit Leuven - Vrije Universiteit Brussel.

Pinxten, M., De Fraine, B., Van Den Noortgate, W., Van Damme, J., Boonen, T., & Vanlaar, G. (2014). 'I Choose so I am': a logistic analysis of major selection in university and successful completion of the first year. *Studies in Higher Education* 40(10), 1919-1946. DOI: 10.1080/03075079.2014.914904

Read, J. (2000). Assessing vocabulary. Cambridge: Cambridge University Press.

Rombaut, K., Cantillon, B., & Verbist, G. (2006). Determinanten van de differentiële slaagkansen in het hoger onderwijs [Decisive factors of differential pass rates in higher education]. Antwerpen: Centrum voor Sociaal Beleid Herman Deleeck.

Verhaegen, A. (ed.). (2013). Peiling Frans luisteren en spreken in de derde graad ASO, KSO en TSO van het secundair onderwijs [Survey of French listening and speaking skills in final two years of general, arts and technical track in secondary school]. Brussel: Agentschap voor Kwaliteitszorg in Onderwijs en Vorming.

Jane Vinther & Jørgen T. Lauridsen

University of Southern Denmark, Odense, Denmark

jvinther@sdu.dk - jtl@sam.sdu.dk

Getting to know the learner: motivational drive, digital literacy, and preferred mode of learning

Bio data



Jane Vinther holds a PhD in computer-assisted language learning and second language acquisition. She has extensive teaching and research experience in CALL, second-language acquisition, and cognitive processes of learning. Her special interests lie in motivation, grammar, language and culture. For further information, see www.sdu.dk/ansat/jvinther.aspx



Jørgen T. Lauridsen is a professor in health economics with an expertise in statistical and quantitative analyses, and he contributed to the project with confirmatory factor analyses. He holds a PhD in Econometrics and has published a large number of articles in different disciplines with emphasis on quantitative methods and their applications. For further information, see www.sdu.dk/ansat/jtl.aspx

Abstract

Data relating to language learners' and users' views, motivation, attitudes, and their preferred mode of learning were elicited and collated with a view to creating a nuanced picture of the relationship between learning preferences, attitudes to digital learning, and motivation. The language classes were conducted as blended learning and the data contain detailed knowledge of how students relate to the digital learning and what they perceive as promoting strong and weak outcomes of the various approaches. This information was correlated with the effect which the teaching approaches and digital applications have on motivation for language learning. Of the interesting aspects appearing from the data, it is a noteworthy result that language anxiety was rated very low in relation to digital learning. The students further report that the digital learning opportunities make them produce more language. The data were analysed for factor load and the motivational forces found in this study can be said to be aligned to the theoretical framework of Self-Determination Theory (Deci and Ryan, 1985). (work in progress).

Conference paper

Introduction

The research in this paper is concerned with knowledge about the learner in instructed second language acquisition. Data relating to language learners and users' views, motivation, attitudes, and their preferred mode of teaching and learning were elicited and collated with a view to creating a nuanced picture of the relationship between

learning preferences and learner attitudes related to digital learning in its many forms. Elicitation of attitudes and subjectively perceived experiences of the learning situation through an online questionnaire (Likert type) contributed a set of data which subsequently was analysed for factor load. Of particular interest to this enquiry were student motivation and attitudes in relation to a change in the learning environment and teaching methods when introducing digital tools and media as a concerted and general strategy in instructed second language (L2) learning. In some cases this change was quite pervasive and often went beyond activities in the classroom. As Stockwell (2013) in a reference to Dörnyei (1999) points out, motivation is hard to stabilise and maintain as it is invariably dynamic and 'elusive' (p.525). The current research has tried to align with Bodnar, Cucchiari, Strik & van Hout's (2016) recommendation to incorporate current motivational research with CALL evaluations. The current research investigates the impact on motivation and attitudes as they come to the fore in situated L2 learning in a context of a planned turn-around from more traditional teaching approaches to creating a digital and mobile learning environment. The data were collected after almost a full school year's exposure to the new media and methods. The new data protection laws in the EU and their strict application are already making this kind of research and data collection difficult, and the future prospects for collecting information about learners will only become more restrictive in the future. Knowledge about L2 learners and users, and being able to share such knowledge, is vital for developing technologically and pedagogically viable advancements in L2 teaching and learning.

Literature review

Quite a wide research field is called upon as the theoretical framework necessary for this paper's research as the research questions draw on previous findings within general motivational theory (Deci and Ryan, 1985), motivational L2 learning theory (Gardner, 1985, 2001; Dörnyei, 1998; Ushioda, 2011) and digital language learning findings (Stockwell, 2013; Vinther, 2008, 2011), in the hope of converging them towards enhanced and integrated knowledge on learner motivation in a learning environment increasingly reliant on digitalisation at a time in which 'E-learning systems are being adopted and developed at ever increasing rates' as related by Keller (2008). The interesting issue is whether L2 learning motivation and the integration of technology in the learning process will be contrastive forces or whether they will support or enhance each other.

Kobayashi & Little (2011) found in their study on blended learning that "the students' perceptions of the program differed according to the proficiency levels of students" (p.103). Stockwell & Hubbard (2013) state that there may be a difference between general appreciation of digital possibilities and that of the learning application of the same, "Knowledge of how to use mobile devices for specific personal and social functions is not always a good indicator of knowledge of educational function" (p.4). Burston (2014) in his study of Mobile Assisted Language Learning (MALL) concluded that "...MALL has yet to realize its full potential and that achieving this aim is more a matter of pedagogy than technology" (p.344). CALL and motivational research was thoroughly investigated by Bodnar et al. (2016) and gives a good overview of recent research in the field. The current study has been interested to examine whether the students' experience of the various digital technologies has found a satisfactory expression in teaching approaches and pedagogies to such an extent that language learning motivation has been sustained or enhanced.

Current motivational research which has been found to resonate well with SLA is Self-Determination Theory (SDT) as expounded by Deci and Ryan's research (1985). The explanatory power of SDT with regard to autonomy and motivation is helpful in understanding the complexities of learner behaviour and especially so in a digital learning environment. Digital learning has inherent affordances for autonomy, self-directed and differentiated learning. Intrinsic motivation, which is the motivational drive that is behind actions which people perform because they are inherently interesting to them, and which

they find enjoyment in, are important for the level of engagement in learning tasks. Extrinsic motivation originates in external conditions to the learner, with a view to achieving certain goals or avoiding consequences of a particular behavior. Extrinsic and intrinsic motivations should not be regarded dichotomous as they may be combined in the learner's mind with the extrinsic motive being accepted as a personal goal (Ryan and Deci, 2000). Such a situation may arise if for instance the L2 is seen as a gateway to pursuing a personal interest for which the L2 is a necessary asset. Dörnyei (1998) connects SDT to L2 as well as Gardner's (1985) social-educational constructs of integrative and instrumental motives. The integrative motive includes an affinity with the culture of the L2 and the desire to integrate with this culture. The instrumental motive, not unlike extrinsic motivation, is driven by external forces. Ushioda (2011) sees a connection between the possibilities of autonomy and new learner roles in technological teaching and learning possibilities and the breaking down of barriers between classroom learning and activities external to that confined room, "Creating this kind of fusion between how students use technology inside and outside the language classroom will help reduce the barriers between L2 learning and life" (p.207).

The study

The data were elicited anonymously via an online survey consisting of a structured sequence of questions and the informants were high-school students studying German (N=201), English (N=189), Spanish (N=105) or French (N=69) as a foreign language (henceforth L2). The digital learning situation comprised of mobile devices, laptop PCs and Macs; interfaces were apps, platforms of closed networks as well as public platforms of social media. The language classes were conducted as blended learning comprising elements of traditional approaches in combination with computer assisted language learning (CALL) including mobile language learning (MALL). The data contain detailed knowledge of how students relate to digital and mobile learning. This information was correlated with the effect which teaching approaches and digital instruments have on motivation relative to language learning preferences. The educational initiative for conducting this research arose out of a national decision to make a serious, deliberate and sustained effort to make digital learning a natural and integrated part of L2 teaching and learning. Such a comprehensive and determined change in the L2 learning environment across languages taught and the entire educational landscape opened the opportunity to collect large scale information about how this was received and perceived by the learners to inform subsequent adjustments and evaluations.

Research questions

RQ1: What was the nature of the students' general L2 motivation?

RQ2: What was the learners' attitude to digital/mobile learning, traditional learning and blended learning (Learning preference)?

RQ3: What was the learners' experience of autonomy, individual freedom, and self-efficacy?

Results

The data set elicited in this study is large and complex and can only be reported in part at present both for reasons of space and for reasons of as yet only partly analysed data information, and it is thus work in progress. Confirmatory Factor Analysis – CFA (see Sharma, 1996) has been carried out for all items included.

Motivational factors

According prevalent theories in the field the study focuses on documenting empirical findings based on Gardner's integrative and instrumental constructs as well as Deci and Ryan's intrinsic and extrinsic constructs and potential correlations between them (see Table 1). CFAs for factor load supported four factors (i.e. those mentioned above). The three factors Intrinsic, Instrumental and Integrative seem to be well represented. However, the Extrinsic factor seems to fall out differently from the others in that one item is not significant, and the other two are negatively correlated to the other three

factors, which in turn are positively correlated to each other. The detailed analyses for each individual item show interesting results. First, it is worth noticing that the items representing intrinsic motivation have high coefficients, R², and highly significant p-values.

Table 1. CFA for Research Question 1: General Motivation for L2 learning

Construct	Label	Coefficient	p-value	R²
INTRINSIC	I love learning languages	0.85	<0.001	0.71
	Languages are interesting	0.93	<0.001	0.86
EXTRINSIC	I have to learn an L2 in my line of study	0.05	0.32	0.01
	It is easy for me	-0.97	<0.001	0.94
	I can get good grades	-0.80	<0.001	0.65
INSTRUMENTAL	It opens for education and jobs	0.41	<0.001	0.17
	I watch untexted TV series on the net	0.51	<0.001	0.25
INTEGRATIVE	It gives me insight into other cultures	0.68	<0.001	0.46
	I have friends / family from the L2 area	0.41	<0.001	0.17
	I am interested in music/lyrics in the language	0.58	<0.001	0.34
GFI				
AGFI				
	Correlation		p-value	
INTR	-0.34		<0.001	
INTR	0.47		<0.001	
INTR	0.79		<0.001	
EXTR	-0.17		<0.001	
EXTR	-0.26		<0.001	
INSTR	0.52		<0.001	

The result for intrinsic motivation indicates that this construct accounts well for the students' motivational drive. This also applies to integrative motivation, albeit to a lesser extent, but the results are significant with p-values for all items at p<0.001. It is also clear, however, that the motivation found in cultural relations through family ties and friendships is weakly represented (coefficient 0.41, R² 0.17) compared to interest in intercultural knowledge and insights (coefficient 0.68, R² 0.46), and interest in general culture such as music/lyrics (coefficient 0.58, R² 0.34). Instrumental motivation is measured at a significant level with p-values for all items at <0.001, but coefficients and R² indicate weaker representation than the intrinsic factor. Interestingly, it appears that the external force of motivation as represented in the requirements of a given study line is not significant (p=0.32), and the two other items, though significant with p<0.001, have negative correlations, but high coefficients (-0.97 and -0.80, respectively) and high R² (0.94 and 0.65, respectively). Correlational values (Table 1) for the relationship between the four factors indicate negative correlation between Extrinsic motivation and the other three motivational factors.

Attitudes to teaching and learning approaches: Learning preferences

We hypothesize that learner attitudes can be expressed in three latent constructs: Attitude to Digital/Mobile Learning (DML), Traditional Learning (TL), and Blended Learning (BL), each manifested in five, two and one questions, respectively (Table 2).

Table 2. CFA for Research Question 2: Learner's Attitude to Digital/Mobile, Traditional and Blended Learning (Learning preferences)

Construct	Label	Coefficient	p-value	R²
DML	I like digital media and methods in L2 teaching	0.41	<0.001	0.17
	Problems with hardware are seldom	0.72	<0.001	0.52
	Problems with apps and software are seldom	0.87	<0.001	0.77
	I need more instructions in apps and programs	-0.02	0.70	0.01
	The teacher gives good instruction and help	0.29	<0.001	0.08
TL	I prefer to learn without digital media	0.62	0.17	0.39
	I learn best without digital media	0.61	0.17	0.37
BL	I prefer combinations of traditional and digital teaching methods	1.00	<0.001	1.00
GFI				
AGFI				
	Correlation		p-value	
DML	-0.01		0.85	
DML	0.16		<0.001	
TL	0.07		0.39	

The theoretical construct Attitude towards Digital/Mobile Learning seems to be quite well represented, except that it is not manifested in the question "*I Need more instruction in apps and programs*". The result is not significant ($p=0.70$) and the coefficient is negative (-0.02), indeed, the R^2 is very low (0.01). It indicates that the majority of students feel that they do get sufficient instructions and help from their teacher. A corresponding item, positively phrased, "*The teacher gives good instruction and help*" shows significance with $p<0.001$, albeit with a low a coefficient of 0.29 and low R^2 of 0.08. Satisfaction with the level of help and instruction could also be said to be expressed in the items "*Problems with hardware are seldom*" and "*Problems with apps and software are seldom*". Both of these have significance levels of $p<0.001$, and high coefficients (0.72 and 0.87, respectively). If the level of problems and malfunctions with hardware and software is so low, the need for help and further instruction is correspondingly low, and when problems do arise, the teacher's help is to some degree seen to be sufficient.

The positive attitude towards the functionality of hardware, software and instruction no doubt plays positively into the generally positive attitude towards digital and mobile learning in the language classroom as represented by "*I like digital media and methods in L2 teaching*".

The construct Blended Learning is well manifested, but this is no surprise given that it is only measured by one question. Traditional Learning comes out with results that are not significant ($p=0.17$), but the two items indicate that the preference for Traditional Learning is not very high; this is underscored by the results for the two items "*I prefer to learn without digital media*" and "*I learn best without digital media*" which have nonsignificant p-values of 0.17.

There appears to be a strong positive relationship between Digital/Mobile Learning and Blended Learning ($p<0.001$), while Traditional Learning is not significantly related to the former two. The positive and significant relationship between Digital/Mobile Learning and

Blended Learning resonates with the fact that in blended learning will have elements of digital/mobile learning towards which there is a positive attitude. Reversely, the negative attitude towards traditional learning as the preferred instructional method supports the preference for blended and digital approaches.

Autonomy, individual freedom and self-efficacy

Based on the initial examination, we hypothesize that autonomy, individual freedom and self-efficacy can be expressed in three theoretical constructs (see Table 3).

Table 3. CFA for Research Question 3: Autonomy, individual freedom, and self-efficacy

Construct	Label	Coefficient	p-value	R²
MDMA	I find mixed digital methods well suited for individual tasks	0.54	<0.001	0.29
	I find mixed digital methods allow me to work in new ways	0.79	<0.001	0.62
	I find mixed digital methods allow me to work in my own pace	0.82	<0.001	0.67
	I find mixed digital methods allow me to work with what is beneficial for me	0.83	<0.001	0.68
	I am able to take responsibility for my own learning with mixed digital methods	0.80	<0.001	0.64
	I find mixed digital methods make me more independent	0.85	<0.001	0.71
MPF	I have own-control over mobile phone learning in the classroom	0.83	<0.001	0.69
	I love to experiment with my mobile phone	0.80	<0.001	0.59
	I find mixed digital methods allow me to be less active in class	0.16	0.01	0.03
DSL	I find digital media allow me to learn in my own way	1.00	<0.001	1.00
GFI				
AGFI				
Correlation			p-value	
MDMA	0.25		<0.001	
MDMA	0.38		<0.001	
MPF	0.45		<0.001	
Correlations with Learning preferences (p-values in parentheses)	MDMA	MPF	DSL	
Digital/Mobile Learning (DML)	0.42 (<0.001)	0.35 (<0.001)	0.33 (<0.001)	
Traditional Learning (TL)	0.03 (0.60)	0.01 (0.90)	0.05 (0.43)	
Blended Learning (BL)	0.40 (<0.001)	0.18 (0.005)	0.33 (<0.001)	

Specifically, the three theoretical constructs, which we denote as Mixed Digital Methods Advantages (MDMA), Mobile Phone Freedom (MPF) and Digital Self-Regulated Learning (DSL) manifest themselves in six, three and one question respectively. The one item that stands out as having a non-significant result is "I find mixed digital methods allow me to

be less active in class" with a coefficient of 0.16, p-value of 0.01, R² of 0.03. Especially R² demonstrates that the factorial variation for this item is hardly related to the other items. It appears that being less active in a digital classroom is not an option which the respondents seem to accept.

All three theoretical constructs seem to be quite well represented by the manifest questions. Turning to correlations, there appears to be a positive relationship between Mixed Digital Methods Advantages and Mobile Phone Freedom. These are, in turn, also positively related to Digital Self-Regulated Learning, presumably indicating the autonomous nature of learning within the digital approach which the constructs represent. The conclusions are supported by R² values. In sum, results indicate that students find and appreciate a great degree of autonomy, independence and self-regulation in digital classrooms. The respondents agree that possibilities are enhanced for individually adjusted teaching and learning. Correlations with Learning preferences indicate a significant positive correlation between autonomy, individual freedom and self-efficacy and Digital/Mobile Learning preference as well as to Blended Learning while the construct is unrelated to Traditional Learning. Likewise, it is seen that Mobile Phone Freedom is positively related to Digital/Mobile Learning and Blended Learning and unrelated to Traditional Learning. Finally, Digital Self-Regulated Learning seems related to Digital/Mobile Learning and Blended Learning but unrelated to Traditional Learning.

Conclusion

In the light of the themes of this conference the current work in progress seeks to enhance knowledge of learners, their preferences, and their motivational drives. Improvements in technology, methodology and general learning environments need to be based on data. Central to such data are the users and learners but we know surprisingly little about the central figures in our field, which often seem to be technology driven. Admittedly, privacy laws make such data difficult to collect and store and even harder to generalise from. Even so, it has been the ambition of this research to get a better informed basis for new strategies in the future.

The students are accepting of digital learning and the many uses and affordances that digital platforms and apps offer. Of the interesting aspects appearing from the data, it is noteworthy that the majority mentioned freedom to learn in accordance with one's own preferred individual style and pace, which in turn enhances motivation, effort and engagement in the I2 learning activity. Data analyses on Learning preferences documented significant results for Digital/Mobile Learning and Blended Learning, but a reverse result in relation to Traditional Learning. A combined investigation of Attitude to Digital Media and Attitude to Language Learning held that there was a negative correlation to Traditional Learning but positive correlations to Digital/mobile Learning as well as Blended Learning approaches. In sum, digital and blended learning approaches seem to enhance motivation, engagement in learning, autonomy and self-regulation whereas the opposite is the case for Traditional Learning.

References

- Bodnar, S., Cuccharini, C., Strik, H., & van Hout, R. (2016). Evaluating the motivational impact of CALL systems: current practices and future directions. Computer Assisted Language Learning, 29(1), 186-212. doi:10.1080/09588221.2014.927365
- Burston, J. (2014). MALL: The Pedagogical Challenges. Computer Assisted Language Learning, 27(4), 344-357.
- Deci, E. L. & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behaviour. New York: Plenum.

- Dörnyei , Z. (1998). Motivation in second and foreign language learning. *Language Teaching*, 31(3), 117-135.
- Dörnyei, Z. (1999). Motivation. In B. Spolsky (Ed.), *Concise Encyclopedia of Educational Linguistics* (pp. 525-532). Oxford: Elsevier.
- Gardner, R. C. (1985). *Social Psychology and Second Language Learning: The Role of Attitudes and Motivation*. London: Edward Arnold.
- Gardner, R. C. (2001). Language Learning Motivation: The Student, the Teacher, and the Researcher. *Texas Papers in Foreign Language Education*, 6(1), 1-18.
- Keller, J. M. (2008). First principles of motivation to learn and e3-learning. *Distance Education*, 29(2), 175-185.
- Kobayashi, K. & Little, A. (2011). Learner perceptions on the usefulness of a blended learning EFL program. *JALTCALL Journal*, 7(1), 103-117.
- Ryan, R. M., and Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25, 54-67.
- Sharma, S. (1996). *Applied Multivariate Techniques*. New York: John Wiley and Sons.
- Stockwell, G. (2013). Technology and Motivation in English-Language Teaching and Learning. In E. Ushioda (Ed.), *International Perspectives on Motivation: Language Learning and Professional Challenges* (pp. 156-175). London: Palgrave Macmillan UK.
- Stockwell, G. & Hubbard, P. (2013). Some emerging principles for mobile-assisted language learning. Monterey, CA: The International Research Foundation for English Language Education. Retrieved from <http://www.tirfonline.org/english-in-the-workforce/mobile-assisted-language-learning>.
- Ushioda, E. (2011). Language learning motivation, self and identity: current theoretical perspectives. *Computer Assisted Language Learning*, 24(3), 199-210.
- Vinther, J. (2008). When CALL is the Better Choice. In J. Colpaert (Ed.), *Practice-Based & Practice-oriented CALL Research: Proceedings CALL 2008*. (pp. 133-136). Antwerp: University of Antwerp.
- Vinther, J. (2011). Enhancing motivation with cultural narratives in computer-mediated communication. *Computer Assisted Language Learning*, 24(4), 337-352.

References should be APA-style (Verdana 10).

Rodrigo Wilkens, Leonardo Zilio & Cédrick Fairon

Université catholique de Louvain, Louvain-la-Neuve, Belgium

{rodrigo.wilkens,leonardo.zilio,cedrick.fairon}@uclouvain.be

SW4ALL corpus: tagged and ready for searching

Bio data

Rodrigo Wilkens is a postdoctoral researcher at the Center for Natural Language Processing (CENTAL), Université catholique de Louvain (UCL), Belgium. He has a master's and PhD degree in Computer Science by the Federal University of Rio Grande do Sul (UFRGS), Brazil, and carried out a doctoral stay in the Massachusetts Institute of Technology (MIT), USA.

Leonardo Zilio is a postdoctoral researcher at the Center for Natural Language Processing (CENTAL), Université catholique de Louvain (UCL), Belgium, where he develops project SMILLE. He obtained his PhD in Linguistics at the Federal University of Rio Grande do Sul (UFRGS), Brazil, and carried out a one-year doctoral stay at the Laboratoire d'Informatic de Grenoble (LIG), France. He is also translator of German, English and Portuguese.

Cédrick Fairon is professor at the Université catholique de Louvain (UCL), Belgium, and director of the Center for Natural Language Processing (CENTAL). After a PhD in Computer Sciences at the University Paris 7, he was postdoctoral researcher at New York University (NYU, Linguistic Department) and worked as Associate Research Scientist at Educational Testing Service (Princeton, NJ) on automatic test generation.

Abstract

Learning a second language is a task that requires a good amount of time and dedication. Part of the process involves reading and writing texts in the target language, but the search for texts that are interesting for learners and pertain to their level is a time-consuming task. By focusing on the need for texts suited for different language learners, we present in this study a corpus classified by language proficiency level that allows the learner to observe ways of describing the same topic or content by using strategies from different proficiency levels. SW4ALL uses the alignments between the English Wikipedia and the Simple English Wikipedia and an annotation of language levels. We used an automatic approach for the organizing the corpus, followed by an analysis to sort out annotation errors. The resource contains 8,669 pairs of documents portraying different levels of language proficiency.

Conference paper

Introduction

Learning a second language is a process that requires exposition to texts, especially for the acquisition of vocabulary (Rott, 1999), and the task of retrieving texts that match learners' language level (or proficiency) can be achieved by using a corpus carefully designed for language learners, or by searching the web. Following these alternatives, systems can dig up texts aiming at finding those that are best suited to the language skills of a learner. Examples of these systems are REAP (Heilman et al., 2008), FLAIR (Chinkina, Kannan and Meurers, 2016), and READ-X (Miltzakaki and Troutt, 2007), which use the web as a corpus.

The use of the web allows for the interaction with a huge diversity of texts, but most of the web texts retrieved by search engines require a high language proficiency, even for native speakers (Vajjala and Meurers, 2013). On the other hand, the use of an off-line corpus ensures content quality, while hindering the search for different text topics.

This dichotomy of text sources enforces different types of restrictions on the systems. An alternative for trying to get the best of both approaches is to use the web as source of texts, but restricting it to trustful domains. This is similar to SourceFinder's method of downloading on-line newspapers and magazines and processing them as text sources (Passonneau et al., 2002; Sheehan, Kostin and Futagi, 2007). However, this approach makes it difficult to update the texts, because all content is stored off-line, and an update would require a rerun of the whole corpus compilation process. Another reliable text source that is adequate for language learners is a corpus of simplified texts, such as the Weekly Reader and the BBC Bitesize. This type of source generally represents an attempt to make texts more accessible for a non-native speaker. Wikipedia also has concerns on the comprehension abilities of its users, so that, for the English language, there is the Simple English Wikipedia, a simplified version, addressing the needs of natives with low literacy and also of learners of English. Resources such as these have a simplified version of a source article, serving as a facilitator for the communication of knowledge for those with less proficiency in the language, but they normally do not have information about to what extent the text is simplified. That is, they do not explain the simplification strategies applied or what is the target reader of each text. For language learning, this information is crucial to better inform the teacher or learner about which texts would be at an understandable level.

For instance, the Common European Framework of Reference for Languages (CEFR) classifies learners in six language levels (ranging from A1 to C2), while other frameworks use score ranges, like TOEFL and IELTS. Without this information about the language level, or some other information about the adequacy to a given target reader, language resources that present a simplified version are, per se, not well suited for language learners, because the applied simplification process may not help certain learners. As such, another classification with pedagogically relevant information is needed, i.e. a classification that takes into account the suitability of the text for learners, regarding the required proficiency.

This study aims at automatically determining the CEFR level of pairs of original and simplified texts, so that a corpus of aligned texts pertaining to different language levels can be used in a language learning framework. This would facilitate the comparison of text structures from different levels that describe the same content, while also allowing for the selection of topics of interest. So, we annotated language levels in an aligned version of the English Wikipedia²² (EW) and Simple English Wikipedia²³ (SEW), and filtered pairs of texts that are associated to different levels, but that refer to the same topic or content. This process resulted in the *Simple Wikipedia for Aligned Language Learning* (SW4ALL)²⁴. This resource could be employed by language teachers to select for their learners pairs of texts with an interesting topic that also present a contrast between two language levels in terms of writing.

Related Work

Aiming to reduce the time necessary to find texts that are interesting and at the learners' level, the SourceFinder (Passonneau et al., 2002; Sheehan, Kostin and Futagi, 2007) allows teachers to search for documents classified in different language levels by using keywords. One of the advantages of SourceFinder is the use of off-line texts, which allows the processing of the texts with several NLP tools without delay to the user.

22 <https://wikipedia.org/>.

23 <https://simple.wikipedia.org/>.

24 http://cental.uclouvain.be/resources/smalla_smille/sw4all/.

Using online documents, the REAP (Heilman et al., 2008), READ-X (Miltsakaki and Troutt, 2007), and LAWSE (Ott and Meurers, 2011) systems allow the users (learners or teachers) to search texts by using keywords and to filter them according to readability measures. Those systems identify the text readability by applying traditional readability scores (Flesch-Kincaid measure (Kincaid et al., 1975), and Gunning Fog Index (Gunning, 1952)) that are based on shallow cues (e.g. number of words per sentence and syllables per word). These measures have the advantage of a fast annotation process, but they are not accurate, and they require the users to deal with a score that may not be familiar to them.

Taking into account the pedagogical function of these systems, a major point is their ability to address documents that are readable by learners. However, text length-based readability scores consider only sentence length and word difficulty, ignoring factors such as cohesion (Bruce, Rubin and Starr, 1981). Recently, Xia, Kochmar and Briscoe (2016) compared syntactic and length-based features for text classification according to language level, and identified that adding syntactic features on top of length-based features improved the classification results, but using only length-based features presented a better result than the syntactic features alone.

All these systems focus on presenting a readable text, but some of them go beyond that, presenting exercises for supporting the learning activity in a more active way (e.g. REAP). In spite of all the effort to present readable and interesting texts to learners, those systems do not indicate how learners can improve their skills by using the indicated texts.

Regarding the representation of the texts in features, there is a huge variety of options in the literature. They can be grouped into 6 categories: length-based (e.g. word and sentence length), lexical (e.g. proportion of words in a list of easy words), morphological (e.g. part of speech), syntactic (e.g. presence of passive voice), semantic (e.g. word polysemy), and language model (e.g. n-gram model perplexity). Usually, a parser-based annotation of features follows the same process as the morphological annotation: simple counts of parser annotation. However, some studies, such as François and Fairon (2012) and Heilman et al. (2007), used information beyond parsed tags.

Methodology

For automatically determining pairs of texts that present good examples of different language levels, we trained a classifier and applied it to the aligned English Wikipedia (EW) and Simple English Wikipedia (SEW). In this section, we present first the alignment between the two Wikipedia versions, then we move on to the resources needed to build a classifier: a training corpus and a feature set.

Aligned Wikipedias

The Wikipedia is a collaborative encyclopedia with huge amounts of texts available in several languages. In English, there are two version, one that just focus on encyclopedic information, and the other that requires this information to be written in a simplified way. Comparing the vocabulary of the two encyclopedias, Coster and Kauchak (2011) identified that 96% of the words in the simple version are found in the other version, and 87% of the words in the normal version are found in the simple version. This overlap is also found at the n-gram level. Regarding the alignment of the Wikipedias, there are different versions, and in this paper we opted for the version organized by Kauchak (2013), in which the texts were, after a cleaning process, aligned both at the document and sentence level, resulting in 60K articles each. The difference in the number of sentences between the Wikipedia versions is partially because some articles from SEW contain only partial information. Indeed, the sentence level alignment presented by Kauchak (2013) was possible in only 28% of the sentences from the SEW (and in 4.25% of the sentences from EW).

Training Corpus

In this study, we used the EF-Cambridge Open Language Database (EFCAMDAT) (Geertzen, Alexopoulou and Korhonen 2013) as training corpus. The corpus is divided according to the

Common European Framework of Reference for languages (CEFR) (Verhelst et al. 2009), and each document has an evaluation score and an associated topic (e.g. introducing yourself by email). The EFCAMDAT corpus contains an unbalanced number of documents per level (e.g. 151 thousand documents for A2 and 23 thousand for B2), so we selected 9,000 random documents from each level, and also filtered out those documents that did not achieve an evaluation score higher than 90%, because, in these cases, learners' errors could have an impact on the machine learning approach (Pilán, Volodina and Zesch, 2016). The result of this process is a corpus of 40,946 documents (9,000 for levels A1, A2, B1, and B2, and 4,946 for C1²⁵).

We decided to use a corpus of texts written by language learners, so that we are able to identify texts compatible with learners' productive skills. By applying to the Wikipedias a model that was trained on texts produced by learners, we expect that the structures in the retrieved texts will be familiar to the language learners, while also providing an authentic source of information, since the texts of the Wikipedias were written by native speakers.

Feature Annotation

The annotation process was three-fold: first the documents were automatically parsed with the Stanford Parser (Manning et al., 2014), and then a series of features were annotated, including grammatical structures that are pedagogically relevant, as conceived by Project SMILLE (Zilio and Fairon, 2017), and readability scores. The annotations were grouped in four categories, inspired by Xia, Kochmar and Briscoe (2016): length-based, morphological, syntactic, and readability.

In addition to these sets of features, we also considered the grouping of these morphological and syntactic features according to two criteria: CEFR level (e.g., A1, A2, etc.) in which they should be learned²⁶, which resulted in 5 grammatical and 5 word features (so that we had, for instance, A2 vocabulary and A2 grammar as feature); and type of grammatical structure (still respecting the CEFR levels division; for instance, connectives, which are learned on CEFR level B1, were put together in one set, but modals, which are learned in different levels, were separated in two sets). These sets of features were called pedagogical feature sets.

Classifier Performance

Corpus size is an important feature in machine learning. So, to evaluate the quality increase of our model in relation to corpus size, we performed ten experiments with varying corpus sizes, from 10% to 100% of the corpus. In each test, we used all feature sets and performed a ten-fold cross-validation with two algorithms (Simple Logistic and Random Forest)²⁷. The model performance was evaluated in terms of precision, recall and f-measure. The f-measure increases an average of 0.15% for each increment of 10% in corpus size. However, in regard to statistical confidence, we identify a significant increase of f-measure only when the corpus is increased by at least 20% (1,590 instances), and no difference was observed in sizes larger than 40%. Despite the nonexistence of statistical difference in larger samples, they present a smaller standard deviation.

To the best of our knowledge, there are no studies addressing the classification of texts written by English learners. However, in the literature there are some studies that are similar to ours. For instance, Pilán, Volodina and Zesch (2016) address the same task, but using the MERLIN corpus (Wisniewski, 2013), which contains documents written in Czech, German, and Italian (80% of f-measure), and Xia, Kochmar and Briscoe (2016) employ a similar set of features, but using the Cambridge English Exams dataset, which is made up of text written by native speakers (80% of accuracy). Still, in an effort to establish a basis of

25 We used all documents that were scored over 90% C1 data, and we did not use the C2-level documents due to the low number of documents.

26 For allocating each structure to a given CEFR level, we used SMILLE's pedagogical model.

27 More details regarding the machine learning process can be found in Wilkens et al. (2018).

comparison, using corpus sizes that were similar to those studies, we achieved an F1 of 82% and an accuracy of 80%. If we consider the full corpus, we have an F1 of 84.7%.

Results

After the evaluation of our classifier, we applied it to the aligned version of the English Wikipedia (EW) and the Simple English Wikipedia (SEW), so that we could observe which pairs of texts are suitable for contrasting different CEFR levels of English. Based on the premises of the SEW that the texts should be simpler than the EW, they should at least be on the same CEFR level as their EW counterpart, so we considered that only pairs for which the system classified the SEW text as having a lower CEFR level than the EW were good for SW4ALL.

From more than 60 thousand pairs of texts, the system classified 9,222 pairs as having an SEW document that was classified as at least one level lower than its EW counterpart, which forms a more reliable set of pairs for language learning purposes. Another good chunk (10,225 pairs) was classified as having the same level in both Wikipedias. For these, we further looked at the distribution as a tie breaker. For instance, a pair in which both texts were classified as B1 was investigated to see if the distribution tended to show that the SEW text was easier than the text from the EW. This process identified 2,223 pairs of documents for which the SEW version tends to present a lower level. By adding these to the good sample, we got 11,445 pairs of texts in which the SEW document was deemed to present a lower level in relation to its EW counterpart.

To ensure the quality of the resource, we turned ourselves once again to the SEW assumptions, which indicate that texts should explain complex concepts to the user, while also splitting complex sentences, so as to form shorter, simpler sentences for the reader, but presenting the same content and with even longer texts (due to the explanations). With this information in mind, we cleaned from the corpus pairs in which the SEW text had a size (in number of words) of 90% or less than its EW counterpart, for the pair would almost certainly not present the same content, let alone a SEW version with more explanations²⁸. This cleaning process removed 1,359 pairs of documents from the good sample, resulting in a subcorpus from the aligned EW-SEW containing 10,086 documents.

As a final step for ensuring the reliability of our classification, we clustered the distribution of probabilities for each level from the classifier using the k-means algorithm (Arthur and Vassilvitskii, 2007)²⁹, so as to distinguish how well our classified data matched the assumptions of the SEW. We divided the clusters into suited or non-suited, using purity as a measure of confidence, and so we were able to identify documents that possibly contain labeling errors. Considering only those documents that had a confidence score of more than 95%, SW4ALL consists of 6,394 pairs of documents (63% of all the documents that were considered suited), but, by relaxing this confidence to all of those above 85%, the size of the resource increases to 8,669 pairs of documents (86% of the documents that were considered suited), while maintaining a good confidence in the classification.

SW4ALL is available for search online and, by entering keywords, the user will have access to the different pairs of documents, with information regarding the level of each document and also the confidence that we have on the given pair, as explained above. The user can then click on the selected pair for accessing the actual web page content.

Final Remarks

This paper presents an interdisciplinary effort mixing Natural Language Processing and Second Language Acquisition to generate SW4ALL, a resource that focuses on the contrast of aligned texts that belong to different CEFR levels. This resource could be employed by

28 We did not restrict a maximum size, because it would be impractical to establish how much explicitations or sentence splitting would be too much.

29 The k value was set as 10.

teachers or learners as a means for comparing grammar, vocabulary and the general structure of texts in different levels.

A classification model was trained using an annotated version of the EFCAMDAT corpus, and the model was then applied for classifying pairs of aligned documents from the English Wikipedia (EW) and its simplified version, the Simple English Wikipedia (SEW). After further analysis, pairs of documents in which the document from the SEW were classified as having a lower level, or a tendency to have a lower level, were used in SW4ALL, resulting in a total of 8,669 pairs of documents. The resource is openly available for browsing and downloading, and displays information about the level of each document in the retrieved pairs, as well as the confidence that we have on them.

The pairs of documents present the same content or topic, so that SW4ALL can be a rich resource for aiding teachers and learners that wish to compare different linguistic strategies for writing a similar content, providing an interesting option for improving the learning of English as a second language.

Acknowledgements.

The authors would like to thank the Walloon Region (Projects BEWARE n. 1510637 and 1610378) for support, and Altissia International for research collaboration.

References

- Arthur, D., & Vassilvitskii, S. (2007, January). k-means++: The advantages of careful seeding. In *Proceedings of the eighteenth annual ACM-SIAM symposium on Discrete algorithms* (pp. 1027-1035). Society for Industrial and Applied Mathematics.
- Bruce, B., Rubin, A., & Starr, K. (1981). Why readability formulas fail. *IEEE Transactions on Professional Communication*, (1), 50-52.
- Chinkina, M., Kannan, M., & Meurers, D. (2016). Online information retrieval for language learning. *Proceedings of ACL-2016 System Demonstrations*, 7-12.
- Coster, W., & Kauchak, D. (2011, June). Learning to simplify sentences using wikipedia. In Proceedings of the workshop on monolingual text-to-text generation (pp. 1-9). Association for Computational Linguistics.
- François, T., & Fairon, C. (2012, July). An AI readability formula for French as a foreign language. In *Proceedings of the 2012 Joint Conference on Empirical Methods in Natural Language Processing and Computational Natural Language Learning* (pp. 466-477). Association for Computational Linguistics.
- Geertzen, J., Alexopoulou, T., & Korhonen, A. (2013, October). Automatic linguistic annotation of large scale L2 databases: The EF-Cambridge Open Language Database (EFCAMDAT). In *Proceedings of the 31st Second Language Research Forum*. Somerville, MA: Cascadilla Proceedings Project.
- Gunning, R. (1952). *The technique of clear writing*.
- Heilman, M., Collins-Thompson, K., Callan, J., & Eskenazi, M. (2007). Combining lexical and grammatical features to improve readability measures for first and second language texts. In *Human Language Technologies 2007: The Conference of the North American Chapter of the Association for Computational Linguistics; Proceedings of the Main Conference* (pp. 460-467).

Heilman, M., Zhao, L., Pino, J., & Eskenazi, M. (2008, June). Retrieval of reading materials for vocabulary and reading practice. In *Proceedings of the Third Workshop on Innovative Use of NLP for Building Educational Applications* (pp. 80-88). Association for Computational Linguistics.

Kauchak, D. (2013). Improving text simplification language modeling using unsimplified text data. In *Proceedings of the 51st annual meeting of the association for computational linguistics (volume 1: Long papers)* (Vol. 1, pp. 1537-1546).

Kincaid, J. P., Fishburne Jr, R. P., Rogers, R. L., & Chissom, B. S. (1975). Derivation of new readability formulas (automated readability index, fog count and flesch reading ease formula) for navy enlisted personnel (No. RBR-8-75). *Naval Technical Training Command Millington TN Research Branch*.

Miltsakaki, E., & Troutt, A. (2007, October). Read-x: Automatic evaluation of reading difficulty of web text. In E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education (pp. 7280-7286). *Association for the Advancement of Computing in Education* (AACE).

Ott, N., & Meurers, D. (2011). Information retrieval for education: Making search engines language aware. *Themes in Science and Technology Education*, 3(1-2), 9-30.

Passonneau, R., Hemat, L., Plante, J., & Sheehan, K. M. (2002). Electronic Sources as Input to GRE® Reading Comprehension Item Development: SourceFinder Prototype Evaluation. *ETS Research Report Series*, 2002(1).

Pilán, I., Volodina, E., & Zesch, T. (2016). Predicting proficiency levels in learner writings by transferring a linguistic complexity model from expert-written coursebooks. In *Proceedings of COLING 2016, the 26th International Conference on Computational Linguistics: Technical Papers* (pp. 2101-2111).

Rott, S. (1999). The effect of exposure frequency on intermediate language learners' incidental vocabulary acquisition and retention through reading. *Studies in second language acquisition*, 21(4), 589-619.

Sheehan, K. M., Kostin, I., & Futagi, Y. (2007). SourceFinder: A construct-driven approach for locating appropriately targeted reading comprehension source texts. In *Workshop on Speech and Language Technology in Education*.

Vajjala, S., & Meurers, D. (2013). On the applicability of readability models to web texts. In *Proceedings of the Second Workshop on Predicting and Improving Text Readability for Target Reader Populations* (pp. 59-68).

Verhelst, N., Van Avermaet, P., Takala, S., Figueiras, N., & North, B. (2009). *Common European Framework of Reference for Languages: learning, teaching, assessment*. Cambridge University Press.

Wisniewski, K., Schöne, K., Nicolas, L., Vettori, C., Boyd, A., Meurers, D., ... & Hana, J. (2013). MERLIN: An online trilingual learner corpus empirically grounding the European reference levels in authentic learner data. In *ICT for Language Learning 2013*, Conference Proceedings, Florence, Italy. Libreriauniversitaria. it Edizioni.

Xia, M., Kochmar, E., & Briscoe, T. (2016). Text readability assessment for second language learners. In *Proceedings of the 11th Workshop on Innovative Use of NLP for Building Educational Applications* (pp. 12-22).

Zilio, L., & Fairon, C. (2017, July). Adaptive system for language learning. In *Advanced Learning Technologies (ICALT), 2017 IEEE 17th International Conference on Advanced Learning Technologies* (pp. 47-49).

Wilkens, R., Zilio, L., & Fairon, C. (2018). SW4ALL: a CEFR-Classified and Aligned Corpus for Language Learning. In *Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC 2018)* (pp. 365-370).

Juan Yang, Xiaofei Qi*, Weiwei Yan & Xiaofang Kuang

Sichuan Normal University, Chengdu, China
*University of Cambridge, Cambridge, UK

Juan_yang@foxmail.com - xq218@cam.ac.uk

Attention allocation and transferring pattern mining in Chinese students invoking English

Bio data

J. Yang Received her PhD in Computer Science from Southwest University, China, in 2007. She is a professor in the Department of Computer Science at Sichuan Normal University, China. Her research interests include learning style in intelligent learning systems, simulations in e-learning, and learning data analysis.

X. F. Qi Obtained a BA in Education at Shandong Normal University, China in 2006, followed by an MA in Early Childhood Education at East China Normal University in Shanghai in 2009. She progressed to Birkbeck College, University of London, obtaining a PhD in Psychology in 2015. She is currently an associate academic researcher in Faculty of Education at University of Cambridge.

W. W. Yan is a post graduate student in Sichuan Normal University.

X. F. Kuang is a post graduate student in Sichuan Normal University.

Abstract

Attention in second language acquisition is claimed to be a necessary and sufficient condition for converting input to intake. Many studies have researched learners' different attention allocation strategies in second language reading and comprehension, but none of them studied attention transferring patterns in invoking second language systems. This paper sought to investigate the detailed attention allocation steps that would be involved in the related cognitive processing when learners are required to invoke a second language system and determine whether there exist different attention transferring patterns among students in various English competency groups. Experiment results show that students in the 'Disorder' and 'Normal' groups borrowed Chinese characters as a bridge to recall the English word, while students in the 'Excellent' group just mapped the visual stimulus to English directly. This result implies that the disorder and normal students' attention stays in their mother language system when they are required to implement the mapping tasks. The lack of the independent English language system not only impedes their reading ability but also prevents them from being excellent English learners.

Conference paper

Introduction

Individual factors that influence language learning include many cognitive individual differences (Gardner, 1985), such as the cognitive abilities related to understanding, perception, concentration, attention and memory (Chrysafiadi & Virvou, 2013; Yang et al., 2014). Among those cognitive differences, attention in second language acquisition (SLA) is claimed to be the necessary and sufficient condition for converting input to intake for

further mental processing(Schmidt, 1990; Van Lier, 1991). Recent research about attention in SLA emphasizes the influence of its related cognitive processes that may impact reading. Rayner et al. (2010) found that faster readers have shorter attention durations on reading materials than slower readers. This result can be explained by the fact that slower readers encountered more unfamiliar words (Just & Carpenter, 1980) than faster readers, because learners will spend much more initial processing time on novel or unfamiliar words than on familiar words(Williams & Morris, 2004). Another factor influencing attention allocation is the difficulty level of the reading material; the more difficult the reading material is the more processing time and number of fixations will be consumed(Rayner et al., 2006).

Except the outer factors that would lead to different attention consuming and reading efficiency in word recognition, Van Der Schoot et al. (2008) demonstrated that the different attention allocation strategies that readers carry out would also influence their reading efficiency. Readers with successful comprehension spent more attention on crucial words than unimportant words than those with less successful comprehension. Boers et al. (2017) concluded a similar result; they found that the amount of attention given to words is a significant predictor of word retention in memory. They argued that increasing students' attention for important words is useful in word acquisition. Tickler and Shi (2017) found that beginners and lower intermediate learners would prefer to give extra attention to Pinyin when they are recognizing Chinese characters. They interviewed the participants to explain this phenomenon and found that the students borrow from Pinyin as a tool to help them to recognize the Chinese characters.

Based on this research, we find that while all related research focuses on attention allocation, none of the research investigates the attention transferring in SLA. However, studying attention transferring can reveal more about learners' cognitive processes than studying attention allocation strategies alone. In this paper, we sought to investigate the detailed attention allocation steps that would be involved in the related cognitive processing when learners are required to invoke a second language system and to determine whether there exists different attention transferring patterns among students in various English competency groups.

Method

Participants

Fifteen grade-one students from Zongbei Experimental Middle School in Chengdu, Sichuan were invited to participate in this experiment. The participant students included 8 girls and 6 boys (ages 12–13 years, mean=12.75, sd=0.34), All student participants performed in the normal range on their first language. Five students were evaluated by their English teacher as having a learning disorder, with their overall English competencies being extremely poor. Four were evaluated as normal students, and the remaining 5 were evaluated as excellent students. All students were randomly chosen from their own groups (e.g., five normal students were randomly chosen from the normal student group, while five excellent students were randomly chosen from the excellent student group).

Eye tracking test

An eye tracking test is designed to investigate participant students' L2 invoking process of the second language system by observing their eye movement trajectories from a visual stimuli (picture) to its matched English word. The eye tracking test is implemented through Tobii 120 with its studio version 3.2.0. We prepared a set of slides for each participant and asked them to find the correct English word among four choices for the animals displayed in the upper area of each slide, the choices included two mismatched English words and a matched Chinese word. Once they have confirmed the target word, the students must keep their attention on the target until the slide is changed. The layout of the slides is illustrated as Figure 1. It is notable that the allocation of the candidate words is random, and only the animals are presented in a fixed area. To mine the

participants' eye gaze patterns, each slide is divided into 5 parts: 'a' represents visual stimulus area, 'b' represents mother language area, 'c' represents target word area, 'd' represents mismatched English area while 'e' represents all other area except the aforementioned areas.

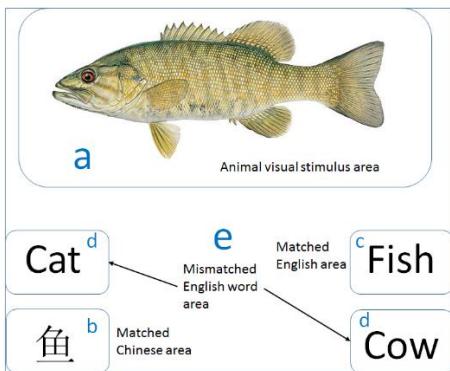


Figure 1. A slide used in eye-tracking test

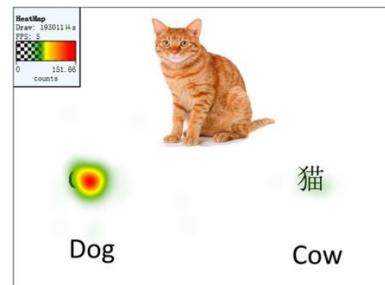


Figure 2. Heat map illustration

Overall attention allocation analysis

In this section, we will analyse the attention allocated to different sensitive areas and its relation with their overall L2 competence. Table 1 lists an ANOVA comparison of the four related indices among three competent groups. It can be seen from Table 1 that the number of times students re-visit the mother language is also significantly different. Excellent students would not re-visit Chinese words after exploring them as candidates; on the contrary, normal and disorder students paid much more attention to the mother language words, which is very unusual.

We further overlapped normal and disorder students' eye gazes regarding each slide into a heat map to make the attention allocation more intuitive. It can be seen from those heat maps that, except required areas, mother language areas also attracted more attention, as illustrated in Figure 2. The heat maps also support the conclusion that the mother language would distract the normal and disorder students.

Another significant difference appears in the attention being allocated to the visual stimulus. Normal students paid much more attention to the visual stimulus than disorder and excellent students. This result reveals normal students' prudential attitude towards the tests. It can also be seen from Table 1 that, although the differences in indices T-all-max and T-m among the three groups are not significant, it is obvious that the average performance regarding disorder, normal and excellent groups are linearly decreasing.

Table 1. ANOVA comparison of four sets of parameters related to participants' cognitive process

	Disorder		Normal		Excellent		Sig.	η^2
	M	SD	M	SD	M	SD		
T-all-max	3450.80	2799.342	1565.75	693.570	862.40	528.564	.10	.34
T-m	451.35	491.850	269.63	148.079	139.55	120.230	.33	.18
N-m	.45	.209	.13	.144	.00	.00	.00**	.69
T-pic	50.00	29.015	144.94	20.882	54.05	59.994	.01*	.56

*Sig.<.05, **Sig.<.01, $\eta^2=.01$ (small effect); $\eta^2=.06$ (medium effect); $\eta^2=.14$ (large effect);

Note : T-all-max: is the longest time spent on finding matched English word among all slides, T-m: is the average of the accumulated time spent on mother language in each slide, N-m: is the average of the number of re-visits to the mother language area after exploring all candidate words per slide, T-pic: is the average of the time to explore the animal picture in each slide.

Sequential attention pattern mining

In this section, we will use frequent sequential pattern mining algorithm SPADE(Zaki, 2001) to mine the eye gaze trajectories of the participants which will reveal participant students' different attention transferring patterns. To explain the results, we added a finish token '0' to the behaviour sequence to represent the behaviour that the participants have confirmed about the matched English words. With 60% supporting degree, the sequential patterns regarding 1-sequence and 2-sequence respectively are listed in Table 2.

Table 2. Different sequential patterns of the participants regarding with 1-sequence and 2-sequence (N=14)

	Large 1-sequence		Large 2-sequence	
	Sequence	Support	Sequence	Support
Disorder & Normal (N=9)	0	34	d0	25
	b	23	b0	23
	d	25		
Excellent(N=5)	0	16	-	-

It can be seen from Table 2 that there are 3 large 1-sequences, which are basic elements to composite large 2-sequences. Large 2-sequences reflect two frequently occurring sequential behaviours on eye moving behaviour sequences. For students in the disorder and normal groups, there are two key nodes on the paths of directing them to the required area:

- mother language area, supported by large 2-sequence 'b0';
- mismatched English word area, supported by large 2-sequence 'd0'.

However, for the five excellent students, there are no extra behaviours before locating the required English words. The behaviour of exploring a mismatched English word area can be considered as they hesitate before deciding on the required word among available words, but the large amount of time exploring the mother language reveals a totally different cognitive process. 12-year-old students usually can exclude the Chinese candidate word at a glance. The only reason to repeatedly stare at the mother language is that they need to borrow from the mother language as a bridge to recall the correct English word. This conclusion is consistent with the result about their attention allocation pattern. An opposite mapping pattern occurred in the 'Excellent' group, without any hesitation and without any help from the slides, students in this group located and confirmed the matched English words just with a glance at the visual stimulus. They mapped the matched English words to the visual stimulus almost without thinking.

Discussion

Based on Table 1 and Table 2, we can speculate that the students in the 'Disorder' and 'Normal' groups borrowed Chinese characters as a bridge to recall the English word, while excellent student just mapped the visual stimulus to English directly. This result implies that the disorder and normal students stay in their mother language system when they are required to implement the mapping tasks; they did not nor did they intend to invoke the second language system. English words stored in their memory are another symbol formed mother language; they are not independent from Chinese. Based on this speculation, we could further argue that learning English highly relying on the mother language would cause a serious learning obstacle, such as preventing students from taking in and understanding information presented in L2. Those obstacles will cost normal students energy to compensate, but the students would gain little in the writing, reading, listening and speaking skills.

What we suggest to the participant students' L2 teachers is that teachers should help those students to build up an L2 system that is independent from the L1 system. More specifically speaking, students should stop memorizing English at the word level; English understanding

should be implemented in sentences and paragraphs, such as posting translated transcriptions for English reading materials in sentences instead of words. For students who are exposed to a poor L2 environment, a possible solution is decreasing the reading materials' difficulty level to help them pay more attention to understanding without being frequently interrupted by unfamiliar words. The purpose of reading is not to increase their L2 word amount, but to help them understand the language from an overall perspective. By enforcing the presentations of L2, English words and their presentations will be independently stored in the brain without the interference of the mother language.

References

- Boers, F., Warren, P., Grimshaw, G., & Siyanova-Chanturia, A. (2017). On the benefits of multimodal annotations for vocabulary uptake from reading. *Computer Assisted Language Learning*, 30(7), 709-725.
- Chrysafiadi, K., & Virvou, M. (2013). Student modeling approaches: A literature review for the last decade. *Expert Systems with Applications*, 40(11), 4715-4729.
- Gardner, R. C. (1985). *Social Psychology and Second Language Learning: The Role of Attitudes and Motivation*: Edward Arnold.
- Just, M. A., & Carpenter, P. A. (1980). A theory of reading: From eye fixations to comprehension. *Psychological review*, 87(4), 329.
- Rayner, K., Chace, K. H., Slattery, T. J., & Ashby, J. (2006). Eye movements as reflections of comprehension processes in reading. *Scientific studies of reading*, 10(3), 241-255.
- Rayner, K., Slattery, T. J., & Bélanger, N. N. (2010). Eye movements, the perceptual span, and reading speed. *Psychonomic bulletin & review*, 17(6), 834-839.
- Schmidt, R. W. (1990). The role of consciousness in second language learning1. *Applied linguistics*, 11(2), 129-158.
- Stickler, U., & Shi, L. J. (2017). Eyetracking methodology in SCMC: A tool for empowering learning and teaching. *ReCALL*, 29(2), 160-177.
- Van Der Schoot, M., Vasbinder, A. L., Horsley, T. M., & Van Lieshout, E. C. (2008). The role of two reading strategies in text comprehension: An eye fixation study in primary school children. *Journal of Research in Reading*, 31(2), 203-223.
- Van Lier, L. (1991). Inside the Classroom: Learning Processes and Teaching Procedures. *Applied Language Learning*, 2(1), 29-68.
- Williams, R., & Morris, R. (2004). Eye movements, word familiarity, and vocabulary acquisition. *European Journal of Cognitive Psychology*, 16(1-2), 312-339.
- Yang, J., Huang, Z. X., Gao, Y. X., & Liu, H. T. (2014). Dynamic learning style prediction method based on a pattern recognition technique. *IEEE Transactions on Learning Technologies*, 7(2), 165-177.
- Zaki, M. J. (2001). SPADE: An efficient algorithm for mining frequent sequences. *Machine learning*, 42(1), 31-60.

Yu Zhu & Liuyan Yang

Xiamen University, Xiamen City, China

zhuyu@xmu.edu.cn - maggieyly@xmu.edu.cn

Exploring the co-occurrence patterns of linguistic features in academic writing in Chinese through a multi-dimensional analysis

Bio data



Yu Zhu received his PhD in foreign language education from Purdue University. He is now an associate professor at the Overseas Education College of Xiamen University in China. His research interests include computer assisted teaching and learning of Chinese as a foreign/second language and assessment of Chinese proficiency for foreign and native language learners.



Liuyan Yang received her Ph.D. from Shanghai International Studies University. She is an assistant professor at the College of Foreign Languages and Cultures of Xiamen University in China. Her research interests include computer-assisted interpreter training and learner autonomy.

Abstract

This study explored the co-occurrence patterns of the linguistic features in academic and recreational written texts in Chinese with one academic writing corpus and one non-academic writing corpus, which consisted of 19,399,914 Chinese characters. Half of them were published papers in top academic journals and unpublished postgraduate-level theses in the fields of humanities and social sciences in China. The other half were best-selling novels and popular non-academic articles published in magazines in China. A total of 111 linguistic features were analyzed which included features of university writings (Biber, 2006) as well as dozens of features summarized by Chinese linguists (Zhang, 2012; Feng, 2008 etc.). Preliminary findings based on multi-dimensional analysis revealed 6 dimensions representing the degree of scholarship in written Chinese. The four genres (novel, magazine article, thesis, and journal paper) each was found a distinguishing set of linguistic features.

Conference paper

Introduction

Chinese linguistic studies have a long history of focusing its concerns on written texts. Traditional research limited their attention to literary works. More research in modern and contemporary extended their interests to other registers such as law, commercial advertisements, newsletters, official documents and so on. But very few have studied the linguistic features in written Chinese for academic purposes. In particular, even fewer, if

any, has explored the co-occurrence pattern of linguistic features as appeared in academic Chinese. With a comparative research design, the present study sets out to find such pattern(s) in representative scholarly works by college faculties and graduate students in the fields of humanities and social sciences in China, applying the MDA approach (Biber, 1988) to a corpus purposefully built for the study.

Methodology

The corpus

A corpus with 19,399,914 Chinese characters was established for the purpose of this study. It included 500 academic texts and 500 non-academic texts. Of the 500 academic texts, 300 were papers published in top Chinese journals in the fields of humanities and social sciences, which represent high quality research work of scholars. The rest 200 were unpublished graduate theses (at both masters' and doctoral level) from top Chinese universities, representing high quality research by students. Meanwhile, 300 texts in popular recreational magazines and 200 popular novels (at short to medium length) were included to make contrast with journal papers and graduate theses respectively.

The linguistic features

A total of 111 linguistic features were analyzed for each of the 1000 texts in this corpus. These linguistic features can be summarized into three categories: a) three basic parameters in corpus linguistics, i.e., word length, average sentence length, and type/token ratio; b) fifty-seven features based on Biber (2006), for example, contractions, pronouns: demonstrative, adverbials: time, etc; c) fifty-one features (for instance, ancient Chinese words, oral words, er-suffix, and so on) from Chinese linguistics such as Zhu (2014), Feng (2008), etc.

The analysis tools

Various programs were used for corpus analysis. More specifically, NLPIR was used for word segmentation and tagging, and AntConc was used for concordancing. In addition, our colleagues in computer sciences offered help with programming for tasks that are very difficult or even impossible with NLPIR or AntConc.

The Procedure

First, texts to be included in the corpus of this study were carefully chosen. Then they were converted from their original formats to UTF-8 texts. Tables, graphs, abstracts, keywords, and references were deleted if there were any. Next, each text was segmented and tagged with NLPIR. After that, frequencies of the 111 linguistic features in each text were tallied with AntConc or programming. Finally, factor analysis was performed with the frequency countings of the 111 linguistic features of the 1000 texts to identify the major co-occurrence dimensions measuring the scholarship in written Chinese. Principal Axis Factoring and Promax Rotation were applied in the factor analysis.

Findings

The MDA (Biber, 1988) approach to the corpus purposefully built for the present study revealed six dimensions measuring the scholarly versus recreational in written Chinese. These six dimensions explained over 51% of the total variances as appeared in the data. Following are a brief description of each of the six dimensions.

Dimension 1: Narrative versus Reasoning

This dimension includes 54 linguistic features. Forty of them are features with negative factor loadings (e.g., oral words, adverbials: place, common verbs: mental, common verbs: communication, adverbials: time, discourse particles, etc.), which function actively in narrative texts, while the rest fourteen features have positive factor loadings, which play important roles in reasoning texts (for instance, nominalizations, common nouns: quantity, ancient Chinese words, ordinal numbering, explanatory clauses, etc.).

Dimension 2: Professional Perception

The linguistic features in this dimension (6 in total) measure the degree of scholarly. More specifically, the feature of “majors in higher education” exemplifies the topics being discussed, when combined with the features of “common nouns: mental” and “verb be (shi) as main verb” strongly imply personal feelings and perceptions in academic contexts.

Dimension 3: Gracefulness and Refinement

This dimension include only three linguistic features. The feature which is based on Prosodic Grammar and functions as an indication of the degree of formalities and gracefulness is “monosyllabic words used in disyllabic templates” as discussed in Feng, Wang, and Huang (2008). The other two features “adverbs: moderately common” and “adverbs: rare” both have a clear function as refining verbs.

Dimension 4: Conditioning

Six features constitute this dimension. They are coordinate clause, causal clause, progressive clause, hypothetical clause, conditional clause, and adversative clause. All of them can set conditions or contexts for the main sentence.

Dimension 5: Hedge

There are only two features in this dimension, namely “hedge” and “adverbials: likelihood” which express a degree of uncertainty of the author.

Dimension 6: Activation and Assertion

It consists three features. “light verbs” implies active actions and “stance nouns” suggests assertion. A negative factor loading of “type-token ratio” reflects the facts that type-token ratio is relatively lower in assertions than in narratives, descriptions, and/or argumentations.

Based on a finding of these six dimensions, factor scores for each tekst in the four genre were calculated and significant differences were found between the academic texts (thesis and journal paper) and the recreational texts (novel and magazine paper) in these dimensions. More importantly typical values for each of these dimensions for thesis and journal paper were discovered and these shed lights in setting quantitative benchmarks for writings in Chinese for academic purposes.

Discussion

More than 180,000 international students enroll in Chinese universities to pursue academic degrees each year. Writing their theses in Chinese is usually required by the educational programs. However, a considerable number of international students in China are not fully prepared for this daunting task, which is evidenced by the fact that linguistic features in their academic writings resembled those in spoken Chinese to a large extent. This is mainly due to the lack of instruction specifically designed for international students to apply the patterns of linguistic features that frequently appeared in written academic Chinese. An equally important reason is that most available textbooks are primarily experience- or practice-based, rather than driven by data generated from corpus-based research.

To provide research-based guidance for the development of instructional materials, the study attempted to take a preliminary step to explore the linguistic patterns in written academic Chinese through a multi-dimensional analysis of a self-built corpus.

The data and information pursued in the current study are pedagogical metadata. They are sets of co-occurrence linguistic patterns frequently applied in academic writings in Chinese to be published in journals, which means it is accessible, exchangeable, and sustainable. Findings of this research can serve as references for compiling high-quality textbooks, which demonstrates its usefulness and reusability.

The data and content that we built is the corpora of written Chinese. The corpora will be open to interested teachers and students. Thus, it is accessible, reusable, and useful. Its size will keep growing and its quality will be enhanced through time, which means it is sustainable. It will allow contributions from users, therefore it is exchangeable.

References

- Biber, D. (1988). Variation across speech and writing. Cambridge: Cambridge University Press.
- Biber, D. (1995). Dimensions of register variation: A cross-linguistic comparison. New York: Cambridge University Press.
- Biber, D. (2006). University language: A corpus-based study of spoken and written registers. Amsterdam: John Benjamins.
- Feng, S. (2002). Prosodic syntax and morphology in Chinese. München: Lincom Europa.
- Feng, Y. (2000). *Xiandai hanyu shumianyu xuexi shouce* [Handbook of modern Chinese written expressions]. Chinese University of Hong Kong Press.
- Jang, S. (1998). Dimensions of spoken and written Taiwanese: A corpus-based register study. Unpublished Doctoral Dissertation. University of Hawaii, 1998.

Leonardo Zilio, Rodrigo Wilkens & Cédrick Fairon

Université Catholique de Louvain, Louvain-la-Neuve, Belgium

{leonardo.zilio,rodrigo.wilkens,cedrick.fairon}@uclouvain.be

Analyzing grammatical structures in texts written by language learners

Bio data

Leonardo Zilio is a postdoctoral researcher at the Center for Natural Language Processing (CENTAL), Université catholique de Louvain (UCL), Belgium, where he develops project SMILLE. He obtained his PhD in Linguistics at the Federal University of Rio Grande do Sul (UFRGS), Brazil, and carried out a one-year doctoral stay at the Laboratoire d'Informatique de Grenoble (LIG), France. He is also translator of German, English and Portuguese.

Rodrigo Wilkens is a postdoctoral researcher at the Center for Natural Language Processing (CENTAL), Université catholique de Louvain (UCL), Belgium. He has a master's and PhD degree in Computer Science by the Federal University of Rio Grande do Sul (UFRGS), Brazil, and carried out a doctoral stay in the Massachusetts Institute of Technology (MIT), USA.

Cédrick Fairon is professor at the Université catholique de Louvain (UCL), Belgium, and director of the Center for Natural Language Processing (CENTAL). After a PhD in Computer Sciences at the University Paris 7, he was postdoctoral researcher at New York University (NYU, Linguistic Department) and worked as Associate Research Scientist at Educational Testing Service (Princeton, NJ) on automatic test generation.

Abstract

In Second Language Acquisition (SLA), the evaluation of a language learner's proficiency is a task that normally involves comparing the learner's production with a learning framework of the target language. One of the most well known frameworks is the Common European Framework for Languages, which establishes communicative goals for language learning in general. In this study, we automatically annotated a corpus of texts produced by language learners with pedagogically relevant grammatical structures and observed how these structures are being employed by learners from different proficiency levels. We analyzed the use of structures both in terms of evolution along the levels and in terms of level in which the structures are used the most. The annotated resource presents a rich source of information for teachers that wish to compare the production of their students with those of already certified language learners.

Conference paper

Introduction

The evaluation of a language learner's performance when producing texts in a foreign language is not an easy task. The factors that impact the overall categorization of texts produced by learners are many, roughly ranging from vocabulary, to syntax and semantics, and to discourse strategies. One way of facilitating this task is to have a profile of the target skills, so that there are some hints on what to expect from a learner in each language level.

For this reason, there are different frameworks that organize how the different language skills should be targeted at each step, while also indicating the required skills for the evaluation of a learner's proficiency. Examples of this type of frameworks are the Common European Framework for Languages (CEFR) and the Cambridge ESOL, which are based on levels, and IELTS and TOEFL, which are based on scores. These frameworks pinpoint, in differently organized fashion, how it is expected that the second language learning will take place for the learner, by listing skills and associating them with an expected level (or score).

In this study, we use a different approach. Instead of pointing out the skills that the learner should be able to master in order to achieve a certain level of proficiency, our objective is to look directly at the production of learners that have already achieved a certain degree of proficiency. By investigating texts produced by learners and quantitatively observing how different types of grammatical structures are used by learners from different language levels and by analyzing the distribution of grammatical structures in their textual production, we aim at finding out which structures are more or less active and how they evolve in terms of use along the different language mastery levels. This generates a language profile that presents some anchor points that teachers can use for evaluating learners, for instance, by comparing the use of specific grammatical structures in text produced in classroom with the average of texts produced by language learners in the same level.

For describing the distribution of grammatical structures in texts produced by language learners, we annotated an SLA corpus with pedagogically relevant grammatical structures, which are referred to in, for instance, learner's grammars and the English Grammar Profile (EGP). Our resource, which was named *SLA in Grammatically Annotated Texts* (SGATE)³⁰, contains more fine-grained information than it would be possible to automatically retrieve from common parsing methods. As such, SGATE provides teachers with the possibility of comparing the written production of their own students with a corpus that displays the use of grammatical structures by certified learners.

Related Work

Among the different frameworks that describe how a second language should be learned, for this study, the CEFR is of special relevance. The CEFR (Verhelst et al., 2009) presents a guide in terms of language levels and content that is meant to serve as a parameter for second language learning in the European Union. It provides a description of communicative goals that a learner should achieve in each of six main levels: A1, A2, B1, B2, C1, and C2. As a general guide that was not designed to cover specific languages, but to present broad communicative guidelines, it leaves various gray areas in terms of the learning process, so that the information for each level does not cover the different needs of a language learner regarding specific grammar and vocabulary content, or even a specific language. As such, the curricula of different language courses do not need to be necessarily the same even if they follow the specified CEFR levels (Alderson, 2007; Little, 2007).

Since we intend to observe the distribution of grammatical structures in a corpus of written production, it is also important to consider systems that were developed for annotating pedagogically relevant information. In this regard, we employed the SMILLE system, which annotate grammatical structures based on the CEFR. The SMILLE system (Zilio and Fairon, 2017; Zilio, Wilkens and Fairon, 2017a; 2017b) recognizes 107 pedagogically relevant grammatical structures in texts. These structures were derived from the pedagogical curriculum for English of Altissia's online learning platform based on the CEFR, so that they are organized by language level. The SMILLE system uses the Stanford Parser (Manning et al., 2014) as basis and then retrieves more complex, pedagogically relevant grammatical information by means of a set of rules that go beyond parser information. These include

30 SGATE is available at http://cental.uclouvain.be/resources/smalla_smille/sgate/.

structures such as *verb + infinitive with "to"*, *connectives of time, quantifiers, conditionals, gerunds as verb complement*, *"let's" + infinitive*, etc.

Methodology

For being able to describe how language learners actually use the grammatical structures they learn, we selected the EF-Cambridge Open Language Database (EFCAMDAT) (Geertzen, Alexopoulou and Korhonen, 2013), which presents a collection of texts produced by learners of English from different levels of proficiency. The corpus amounts to more than 83 million words and is divided according to the Common European Framework of Reference for languages (CEFR). Each document in the corpus has a score indicating how well the learner performed in the task and is linked to a specific topic (e.g. *introducing yourself by email*).

We used the SMILLE system to annotate the corpus with 107 grammatical structures that are pedagogically relevant and analyzed their distribution on the different language levels. These grammatically rich annotations that were added to the EFCAMDAT corpus gave birth to SGATE, namely *SLA in Grammatically Annotated Texts*, a resource in which it is possible to observe the second language acquisition of different learners in terms of pedagogically relevant grammatical structures. Since many of these structures are complex and require rules on top of parser information for being annotated, and since the automatic annotation was not conducted on texts produced by native speakers of English, we conducted an evaluation in terms of precision.

This evaluation was carried out by one linguist and was designed to verify how well SMILLE's handcrafted rules can annotate a corpus of texts produced by learners, including even the most basic levels. Since the structures are automatically annotated, the evaluation also contributes to show on which of the annotated structures we can rely for analyzing the annotated data. The evaluation was carried out on a random sample of the corpus: we extracted a sample of 40 documents from each of the 6 CEFR levels, totaling 240 documents.

Since it would be impossible to evaluate every grammatical structure that was annotated by SMILLE's system in SGATE, and since some of them simply rely on the parser's morphosyntactic annotation, we selected 33 structures to be evaluated that do not rely on morphosyntactic annotation³¹ and that present a general overview of the features that SMILLE can annotate³².

Evaluation

We excluded from the results those annotation errors that were caused by bad spelling or structural organization of sentences, but these were a minor issue, representing only 1.24% of the sample. The overall precision of the system for the evaluated structures was 90.10% (weighed precision: 92.46%), with median at 97.50%. As shown in Table 1, when we look at the differences from level to level, we see a bad overall precision at level A1, and then no palpable difference between the other levels, but a much higher overall precision score. There are many possible reasons for this discrepancy from the A1 level to the others, one of them is the possibility that A1 documents present a writing style that lacks naturalness, and this makes it harder for the parser and for the system's rules to recognize the correct text patterns required for annotating the grammatical structures.

Table 2 shows the precision scores for the different evaluated structures in our sample of SGATE. Although most of the structures had a good precision overall, some structures had performance below 60%, like gerunds as subject of verb, that had an overall precision of

31 There is only one structure that is based on morphosyntactic annotation, and that is the genitive marker. We included this annotation, because it is an important grammatical structure of the English language, and sometimes it poses a problem for learners.

32 A list of the features, with examples, is described by Zilio, Wilkens and Fairon (2018).

55.56%, and did not perform well in any level. Other structures, like imperatives, had lower performance overall (82.03%), but performed very well if we exclude the A1 and A2 Levels (90.48%). The same is true for the genitive marker, which had a low performance in Levels A1 through B1, which pulled its overall performance down to 67.53%, but actually got a high score in the more advanced levels (90.20%). We verified a similar result regarding connectives, but this time in terms of granularity. The evaluation of connectives showed an overall precision of 87.06%, but we also observed that two classes of connectives, namely connectives of example and connectives of purpose, had a much lower precision score (58.02% and 63.36%, respectively), which was compensated by the other classes. This precision evaluation served to show us where the weaknesses and strengths of the annotation lie, so that we could proceed with a deeper analysis of SGATE for describing a language learning profile.

Table 1 - Precision scores for each level

CEFR levels	Overall precision (%)	Weighed precision (%)
A1	58.54	67.21
A2	89.84	91.05
B1	91.75	91.40
B2	90.89	91.70
C1	91.02	90.48
C2	90.81	90.65

Profile of Grammatical Structures

The SGATE (SLA in Grammatically Annotated Texts) resource comprises the entire EF-Cambridge Open Language Database (EFCAMDAT) annotated with pedagogically relevant grammatical structures. For a first exploratory analysis, we looked at the distribution of structures along the different CEFR levels, analyzing the increase or decrease in their occurrence. For that, we used a linear regression algorithm that shows the tendency of structure use across the levels. In terms of selection of grammatical structures for this observation, we analyzed verb tenses and other structures that depend only on the parser's morphosyntactic information, and, from the structures that we evaluated in this study, we selected only those that had precision scores above 90%.

As we observed in the Evaluation section, the automatic annotation doesn't perform well in Level A1, so, for the profiling presented here, we excluded data from that level. We also filtered out documents from the corpus for which the score was lower than 90%³³, because texts with lower scores may present some errors that can interfere with the automatic annotation. We also balanced as best as we could the number of texts from each level, so that Levels A2, B1 and B2 had 9 thousand documents each, and C1 had more than 4 thousand documents³⁴. As a final step, we normalized the frequency of the grammatical structures in each level by using a frequency-per-sentence score, which was further converted to logarithm, to compensate for the fact that language data tend to appear in a Zipf distribution.

After this balancing and normalization process that was performed on SGATE data to give us a more reliable information on the tendency of use of grammatical structures along the levels, we divided the structures in three categories, regarding their tendency to evolve along the levels: increasing tendency (angle of the line above 30 degrees), decreasing

33 This is based on the actual score that was given to the texts by L2 evaluators of the Cambridge University while assessing the learner's performance on an exam.

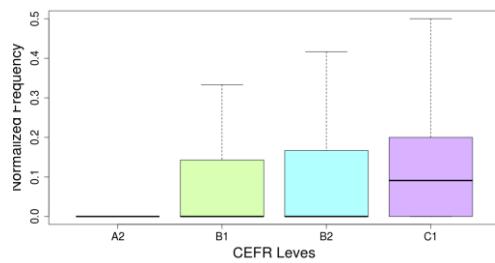
34 All documents with scores above 90% were included in the C1 data. C2 documents were too few to include.

tendency (angle of the line below -30 degrees) and neutral tendency (angle of the line between -30 and 30 degrees). As a means of ensuring the reliability of our results, we considered the linear tendency reliable only if the error of the slope in the linear model scored below 0.15.

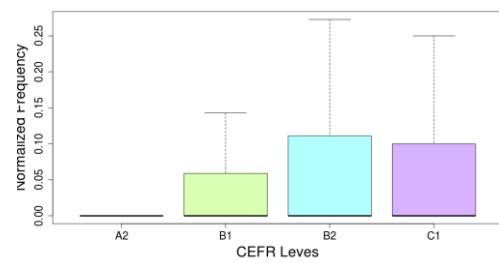
Table 2 - Precision scores of evaluated structures

#	Structure	Total	Precision
1	Gerunds after preposition	109	95.41%
2	Gerunds as complement	3	100.00%
3	Gerunds (no change of meaning)	18	100.00%
4	Gerunds (change of meaning)	2	100.00%
5	Gerunds as subject of a verb	9	55.56%
6	Adjective + infinitive with "to"	93	94.62%
7	Noun + infinitive with "to"	75	74.67%
8	Verb + infinitive with "to"	370	91.35%
9	"let"/"make" + infinitive	25	88.00%
10	"let's" + infinitive	2	100.00%
11	"rather"/"better" + infinitive	1	100,00%
12	Present perfect continuous	12	100.00%
13	Past perfect continuous	2	100.00%
14	Future perfect	3	100.00%
15	Imperatives	128	82.03%
16	Passive voice	233	87.12%
17	Passive adverbs	29	72.41%
18	Connectives	765	87,06%
19	Relative clauses	103	94,17%
20	First conditional	38	100.00%
21	Second conditional	12	100.00%
22	Third conditional	1	100.00%
23	Hypothesis: "would"	48	97.92%
24	Hypothesis: "would have"	1	100.00%
25	Prepositional verbs	199	97.49%
26	Phrasal verbs	104	96.15%
27	"wish" followed by past	1	100,00%
28	Genitive marker	77	67.53%
29	Quantifiers	320	97,50%
30	Special forms of plural	109	99.08%
31	Semi-auxiliaries	79	75,95%
32	Question tags	3	100,00%
33	Wh-questions	35	97,14%

We present here the structures divided by category with information about the angle in brackets. These are the structures with an **increasing tendency**: *adjectives followed by infinitive with "to"* (53°), *relative clauses* (53°), *gerunds after preposition* (52°), *past perfect tense* (51°), *passive voice* (45°), and *gerunds as complement of a verb* (34°). Two examples of these structures are plotted in Figure 1. These are the structures that tend to be roughly **equally** used along the levels A2 to C1: *imperatives* (-3°), *verbs "let" or "make" + infinitive without "to"* (13°), *present participles* (3°), and *present simple* (-1°). Two examples of these structures can be seen in Figure 2. Finally, these are the structures that presented a **decreasing tendency**: *short forms* (-43°), *present continuous* (-43°), and *gerunds instead of infinitive (no change of meaning)* (-35°). We plotted two examples of these structures in Figure 3.

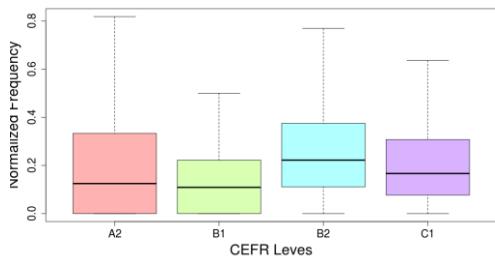


1a. Passive Voice

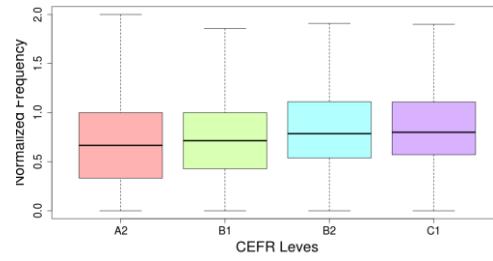


1b. Relative Clauses

Fig. 1 – Examples of structures that have a tendency to be progressively more prominent along the language levels.

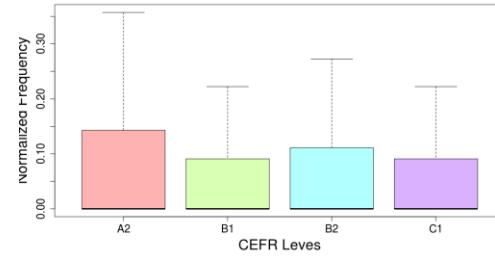


2a. Present Participle

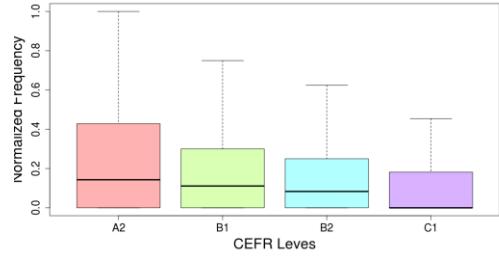


2b. Present Simple

Fig. 2 – Examples of structures that have a tendency to be equally used along the language levels.



3a. Present Continuous



3b. Short Forms

Fig. 3 – Examples of structures that have a tendency to be progressively less prominent along the language levels.

The tendency lines presented some interesting information, like the decrease in the use of short forms and the present continuous, while the past perfect and relative clauses get more used. Passive voice also has an increasing tendency, which is expected, because it is

considered to be a more complicated structure to master. This type of information may aid a language teacher to evaluate the progression of learners, by matching their production in terms of grammatical structures to a more ample sample of texts.

Since many structures do not present a clear ascending, descending or neutral tendency (i.e., the error of the slope was 0.15 or higher), we also looked at the peaks of use of each grammatical structure. We used the same data that was normalized by sentence, and we observed in which levels the structures occurred the most (considering a confidence interval of 95% for determining if the difference was significant). Structures that occurred the most at Level A2 were the following: *short forms*, *past simple*, *past simple of the verb "to be"*, *past simple of the verb "to have"*, *past continuous*, *present simple of the verb "to do"*, *present continuous*, and *gerunds instead of infinitive (no change of meaning)*. These are the structures that occurred the most at Level B1: *use of "going to"*, *future perfect*, *future*, and *expression "let's" followed by infinitive*. Structures that occurred the most at Level B2 were the following: *genitive markers*, *present participles*, and *present simple of the verb "to be"*. These are the structures that occurred the most at Level C1: *first conditional*, *second conditional*, *hypothesis with "would"*, *future continuous*, *gerunds after preposition*, *imperatives*, *passive voice*, *past perfect*, *past perfect continuous*, *present perfect of the verbs "to be" and "to have"*, *present perfect continuous*, *present perfect*, *relative clauses*, *verbs "let" or "make" + infinitive without "to"*, *adjective + infinitive with "to"*, *verb + infinitive with "to"*, and *connectives*.

With this second analysis, we could observe that the verb tenses are well distributed along the corpus: present simple and present continuous, and past simple of auxiliary verbs at level A2, followed by future at Level B1, and then the perfect tenses at Level C1. Connectives are also more concentrated at Level C1, which was a bit of a surprise, since, for instance, the English Grammar Profile tends to present them as lower level structures. The same is true for first and second conditionals, which are normally regarded as A2 or B1-level structures, but have a greater concentration at level C1. This is maybe a sign of the difference between the time of learning and the actual mastery of the grammatical structure.

Conclusion

In this paper, we described the automatic annotation of the EF-Cambridge Open Language Database (EFCAMDAT), a corpus of texts produced by language learners, with pedagogically relevant grammatical information. This layer of annotation that was added to the EFCAMDAT originated SGATe (SLA in Grammatically Annotated Texts) and that allowed us to analyze the distribution of grammatical structures in the production of language learners. As such, we could describe the actual active use of structures by the learners. This same annotation of SMILLE could be employed by language teachers to their learners' texts in order to support an analysis of how they are grammatically structured, facilitating text evaluation. It is important to highlight that the structures annotated by SMILLE were carefully tailored to better suit studies of SLA, and many of them are not simply retrieved by standard parsing methods.

On top of the data from SGATe, we used a linear regression and later an analysis of peaks of occurrence to determine the behavior of grammatical structures in the corpus. This presented us with some expected results, such as passive voice being more used in higher levels, but also showed some interesting results, like the predominance of use of connectives in C1 Level, as opposed to lower levels, as is described in the English Grammar Profile.

The new layer of annotation presented in SGATe allows for teachers to observe how learners tend to employ the grammatical content that is learned, but also allows researchers to observe how the different structures are distributed in the corpus. Considering that EFCAMDAT comprises 137 different nationalities, one further point of interest would be to

observe which type of influence the different mother tongues may have on the written production of learners of English.

Acknowledgements

The authors would like to thank the Walloon Region (Projects BEWARE n. 1510637 and 1610378) for support, and Altissia International for research collaboration.

References

- Alderson, J. C. (2007). The CEFR and the need for more research. *The Modern Language Journal*, 91(4), 659-663.
- Geertzen, J., Alexopoulou, T., & Korhonen, A. (2013, October). Automatic linguistic annotation of large scale L2 databases: The EF-Cambridge Open Language Database (EFCAMDAT). In *Proceedings of the 31st Second Language Research Forum*. Somerville, MA: Cascadilla Proceedings Project.
- Little, D. (2007). The Common European Framework of Reference for Languages: Perspectives on the making of supranational language education policy. *The Modern Language Journal*, 91(4), 645-655.
- Manning, C., Surdeanu, M., Bauer, J., Finkel, J., Bethard, S., & McClosky, D. (2014). The Stanford CoreNLP natural language processing toolkit. In *Proceedings of 52nd annual meeting of the association for computational linguistics: system demonstrations* (pp. 55-60).
- Verhelst, N., Van Avermaet, P., Takala, S., Figueras, N., & North, B. (2009). *Common European Framework of Reference for Languages: learning, teaching, assessment*. Cambridge University Press.
- Zilio, L., & Fairon, C. (2017, July). Adaptive system for language learning. In *Advanced Learning Technologies (ICALT), 2017 IEEE 17th International Conference on* (pp. 47-49). IEEE.
- Zilio, L., Wilkens, R., & Fairon, C. (2017a). Using NLP for enhancing second language acquisition. *Proceedings of Recent Advances in Natural Language Processing (RANLP 2017)* in Varna, Bulgaria, 839-846.
- Zilio, L., Wilkens, R., & Fairon, C. (2017b). Enhancing grammatical structures in web-based texts. CALL in a climate of change: adapting to turbulent global conditions—short papers from *EUROCALL 2017*, 345.
- Zilio, L., Wilkens, R., & Fairon, C. (2018). An SLA Corpus Annotated with Pedagogically Relevant Grammatical Structures. *Proceedings of Language Resources and Evaluation Conference (LREC 2018)* in Miyazaki, Japan.