MLEARNING 2.0: FOSTERING INTERNATIONAL COLLABORATION

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Abstract

This paper explores the development of a 2011 international collaborative mlearning project that builds upon the success of the implementation of over 30 mlearning projects by the researcher between 2006 and 2011. In particular the project builds upon a 2010 Architecture mlearning project (Cochrane & Rhodes, 2011). The 2011 project aims to produce a significant core group of mlearning evangelists from the participating lecturers and students who will become technology stewards within each of their respective institutions, and facilitating the establishment of further international co-creative mlearning projects in 2012. The 2011 project incorporates international collaboration between Architecture elective course students (Unitec) and public relations students (AUT University) in New Zealand, and groups of students in the UK (Sheffield University and Salford University), Spain (Universitat Rovira i Virgili), and Germany (Beuth University of Applied Sciences Berlin), where the researcher has established partnerships with lecturers keen to explore the potential of mlearning integration. The learning contexts include: Third year elective Architecture students (Unitec), third year Public Relations students (AUT), first year Design students (Sheffield), Sociology of Technology elective students (Beuth), MSc Audio Production students (Salford), and Master of Education students (Tarragona). The paper reflects upon the establishment of the international collaboration project and the impact of the use of mobile web 2.0 tools as a foundation for the participant collaborations.

Keywords: mlearning, web 2.0, collaboration, heutagogy.

1 INTRODUCTION

This international collaboration (icollab11) aims to enhance student teamwork by requiring students to utilize the communication and collaboration affordances of smartphones (for example Twitter, and Qik mobile video streaming) as they form international teams and negotiate learning outcomes and team projects with the lecturers in all four countries creating a virtual cultural exchange experience. Students explore the roles of digital identities in online communities. The project focuses upon each student group forming a community of practice (COP) and sharing their own mobile generated content as appropriate for their context and garnering feedback from the other international groups. Thus each local physical community of practice is also augmented by a virtual community of practice made up of the participants from all three countries. Each lecturer brings unique mlearning experience and expertise to the collaborative project. The project involves exploring the use of:

- International collaboration (A. Gordon & Picherit-Duther, 2009; A. E. Gordon, 2011)
- Google Docs for collaborative project mapping and management by the lecturers
- Twitter for communication and sharing of ideas (Buchem, 2011; Cochrane, 2010).
- Student blogs for recording project progress and peer commenting (Cochrane & Bateman, 2011)
- Mobile student-generated media (for example: geotagged images shared via Flickr or Picasaweb, and video shared via YouTube) (Keegan, 2010)
- Student-team projects in each country/course - remotely presented via Prezi Meeting and involving student critique (Buchem & Camacho, 2011)

- Student-generated Augmented Reality utilizing either 'Layer' or Wikitude or Junaio from each student team representing their outputs of their project (for example: links to Architectural images, QRCodes, mobile video episodes on YouTube) (Cochrane & Rhodes, 2011)
- Collaborative teaching, for example Skype or Google Plus Hangout remote presentations and VODCasts from each project leader

The resultant artifacts produced as reified learning objects by each student team COP become boundary objects that the lecturers use to broker the international virtual COP between the five local physical COPs. It is also hoped that this international project will facilitate pedagogical shifts from teacher-directed learning towards heutagogy or student-directed and negotiated learning contexts (Garnett, 2010; Luckin, et al., 2010) within each of the participating countries context.

2 METHODOLOGY

The project has five core goals:

- Creating a shared virtual International cultural exchange for teams of students in four countries
- Enhancing collaboration between student teams
- Modelling heutagogical approaches to education
- Exploring the use of mobile Web 2.0 as catalyst for pedagogical change/innovation
- Collaborative research on the scholarship of teaching and learning

2.1 Action Research

The project uses a participatory action research methodology (Swantz, 2008; Wadsworth, 1998), with the 2011 project forming a research cycle informed by the previous mlearning projects 2006 to 2010 (Cochrane, 2011), and the 2011 project will inform subsequent project iterations in 2012 that will further explore collaborative student co-creation across international boundaries. The focus of the research is implementing pedagogical transformation in multiple contexts.

2.1.1 Research Questions

1. What is the value added to lecturers and to students from participating in such a collaboration in terms of (for example) acquired competencies, social capital, and motivation.
2. What types of learning activities and pedagogical strategies prove appropriate for this type of student collaboration?
3. What strategies can be used to design the pedagogical use of Web 2.0 tools to create social constructivist learning environments that bridge formal and informal learning contexts, and also bridge international boundaries?
4. What are best practice examples of the pedagogical use of Wireless Mobile Devices (WMDs) to facilitate access to these Web 2.0 tools?

2.2 Theoretical Frameworks

The project is founded upon social learning theory and frameworks. These inform the choice of technologies that support the types of interaction and assessment strategies implemented within the project, forming a design framework.

2.2.1 Social Constructivism

Vygotsky (1978) argued that learning is a collaborative process. According to Vygotsky the role of the teacher is to create and maintain the Zone of Proximal Development (Head & Dakers, 2005), an environment that will help move the learner from their current understanding to a potential deeper level. Social constructivist pedagogies are interested in enabling students to develop creative, critical thinking, and collaborative skills, rather than focusing upon course content (Evans, 2005).

2.2.2 Communities Of Practice

Communities Of Practice are made up of groups of people with a common interest who act as peers as they explore issues within a particular context. Lave and Wenger (1991) assert that new peripheral (or partial participation) community members learn from the active members of a community, and learning occurs as they are gradually brought into an active role or full participation in the community. The process of moving from a position of legitimate peripheral participation to full participation within a

community of practice involves sustained activity and requires time for the ontological shifts that must occur. An ontological shift is "the re-assignment or re-categorizing of an instance from one ontological category to another" (Chi & Hausmann, 2003, p. 432), or simply put, a reconceptualisation. The sustained engagement of a community of practice creates a supportive framework for cultivating participant ontological shifts as lecturers reconceptualise their roles from content experts to teachers that facilitate student-generated content and student-generated learning contexts. Students must also reconceptualise their role as learners from passive receptors of knowledge to participants in enquiry that leads to student-generated content and student-generated contexts.

2.2.3 Learner-Generated Contexts

Mlearning is not just the miniaturization and convenience of portable computing, but is transforming how we conceptualize and interact with computing and our environment, communicate, and create and manipulate information (Cheney, 2010; Pachler, Bachmair, & Cook, 2010). Mlearning is about ubiquitous social connectivity, instant information access, and enhancing how we view the world through digital augmentation (Cook, 2010). It is empowering for learners, who can become content and context generators within authentic learning environments (Herrington & Herrington, 2006, 2007) rather than simply consumers of transmitted content in classrooms. This transformation is aptly described by the Learner-generated contexts group and the concept of bridging the Pedagogy-Andragogy-Heutagogy (PAH) continuum. Luckin et al. (2010) argue that Heutagogy (student-directed learning) need not be the domain of post-graduate research students only, and propose the concept of learner-generated contexts as a framework to help achieve this. Garnett (2010) describes the process of this transformation of lecturer's reconception of pedagogy in three steps following the PAH continuum: moving from Pedagogy (teacher-directed) to Andragogy (student-centred, student-generated content), and towards Heutagogy (student-directed or negotiated learning).

2.3 Modeling Collaboration

The use of mobile web 2.0 as part of the teaching and learning environment requires changes in pedagogy and integration into the teaching and learning processes. To achieve these changes it was important that the participating lecturers model the process of learner-generated content and learner-generated contexts. Thus the lecturers have formed a virtual community of practice and used the tools that students will be expected to use in establishing and maintaining this lecturer COP.

2.3.1 Creating a virtual Community Of Practice among the lecturers

Wenger has argued that web based technologies can support the development of communities of practice. The lecturers participating in this project used the following tools and strategies for creating virtual COP:

- Google Docs for an initial outline of the project and its goals
- A group wiki for development of the ideas
- Skype for brainstorming and voice meetings
- Google Plus Hangout creating a group 'circle' for weekly video conferencing
- Twitter as a core communication tool

3 PROJECT OUTLINES

The overall mlearning project strategy focuses upon enabling the pedagogical use of elearning tools beyond the LMS, with a particular focus upon developing rich-media student-generated eportfolios that are then shared and critiqued by the other participating student groups. The use of Wireless Mobile Devices (WMDs) utilising the affordances of web 2.0 is a core catalyst in enabling these student-generated eportfolios, enabling communication and collaboration across the boundaries of distance and time-zones. The following sections outline the six participating groups of students and how collaboration is achieved.

3.1 Collaboration Framework

A common set of mobile web 2.0 tools were used to enable collaboration, including:

- Initial social introductions and interaction
    - YouTube introductions
    - Flickr group

    - Community playlist e.g. Spotify, Soundcloud, LastFM...
- Establishing the use of a common set of Web 2.0 collaborative tools:
    - Individual Wordpress Blogs
    - Individual Twitter accounts
    - Project Hashtag
    - Project Wiki Page
    - Establishment of Google Group or Wiki for sharing Web 2.0 contact details, YouTube channels, Flickr, Picasaweb, etc..
- Negotiation of student team projects
- Exploration of co-creation of media
- Virtual Presentation and critique of team projects

Table 1: Overview of the six participating icollab11 groups.

Group Participants	Timeframe	Student Profile	Objectives	Areas of interest and expertise	Possible issues or constraints	Core tools
UNITEC	10 May to 28 Nov	20 students, 3rd year Bachelor of Architecture. Elective focused around a weekly community of practice	iArchitecture, Course Aim: To explore the role individual and socially connected digital presence has in building and participating in a worldwide architectural community using current web and mobile technologies.	Augmented Reality, mobile film making Use of mobile technologies for Architectural communication/design	Timeframe overlap between NZ academic year and that in other countries	iPhone4 iPad Twitter Wordpress Wikitude QRCodes
Sheffield	September to November	20 2nd years Bachelor of Furniture & Product Design	Design project - module for ‘Design Exhibition’	Managing an online presence that meets the expectations of the design community	Using student owned devices and some University provided devices.	Smartphones (various) Netbooks? Laptops Wordpress Picasa QR codes Google Docs
Berlin	4th Oct 2011 - 11th Feb 2012	N=30 to 40 bachelor and master, technology-focused	Module on sociology of technology	Exploration of mobile Web 2.0 and reflection on changes in society	Student owned devices	Smartphones Wordpress Twitter Google docs Dropbox Skype
Salford	26 Sept-12 Dec	20 students MSc Audio Production (n=17) MSc Professional Sound and	Social Media module Developing practical skills and theoretical understanding of social media	Music, Sound recording, Audio Production, Acoustics Developing a professionalised online presence,	Student owned devices	Wordpress Twitter YouTube Flickr Soundcloud

		Video Technology (n=3)	across a range of contexts Emphasis on audio/acoustics industries	personal learning networks (PLNs), bridging education and industry		Google docs Smartphones (various)
Tarragona	26 Sep 2011-31st Jan 2012	n=20 Bachelors (1st-2nd year) Future-to-be teachers	Educational technology module	Web 2.0 tools and use of mobile technologies to create student generated content	Student-owned devices	Blogs wikis Google apps Twitter FaceBook
AUT	29 Aug 2011 to 19 Oct 2011	3rd year Bachelors students	Public Relations, Knowledge Management and the impact of social media	Communication strategies	Student-owned devices	Twitter Polleverywhere Surveymonkey

3.2 Unitec (NZ)

The Unitec project is embedded within a third year Bachelor of Architecture elective course, iArchitecture. The aim of the iArchitecture elective is to explore the role individual and socially connected digital presence has in building and participation in a worldwide architectural community using current web and mobile technologies. This involved exploration of Architecture in a digitally connected society, using: a range of web 2.0 tools, wireless mobile devices (iPhones and iPads), and participation in a community of practice comprised of student peers and content experts (lecturers and a technology steward) focused upon creating student-generated web-based eportfolios enhanced by augmented reality, and social software, within student-generated contexts. Rather than a prescribed curriculum delivered by course lecturers (pedagogy), the course is driven by student-negotiated team projects guided by the lecturers as participants in a dynamic learning community (heutagogy).

The outcomes of the iArchitecture community of practice include:

1. Developing an understanding of the roles of digital identities in online communities.
2. Designing and production of an online presence suitable for inclusion in student's e-portfolio, using multi-media techniques and leading-edge hardware and software.
3. Gaining experience in international group collaboration.
4. Becoming a technology steward for the architectural community.

The iArchitecture community of practice (COP) bridges the five other participating COPs using Twitter as a commounication and collaboration tool, journaling the iArchitecture student team projects via Wordpress blogs, and personalising the communication and collaboration by introducing students via short YouTube VODCasts, and Google Plus Hangouts. The web-based artifacts generated by the iAtchitecture student teams will be shared and critiqued by the wider international COP via commenting and rating of these artifacts, generating international conversations. By using geolocation within these projects (for example within Wikitude layers and Google Maps), the five other student groups will be able to virtually experience aspects of these projects.

3.3 Sheffield-Hallum University (UK)

The Sheffield Hallam University (SHU) project is embedded within a second year B.A (Hons) of Furniture & Product module; Design For Exhibition. The theme of the module is Negative to Positive - reinventing storage with an emphasis on products to occupy un-used spaces. There exists a myriad of design opportunities that designers have not previously explored. Coupled with this and driven by the rising (and set to rise) cost of floor space there is the need for humans to utilize interior and exterior

spaces to the maximum. Students have been asked to investigate via a socially-connected digital presence and using current web and mobile technologies the making and sharing of images, geographic locations and ideas about empty spaces within interior environments - contexts that are currently un-used, vacant, and at the extremes of our environmental. This involves the exploration of design in a digitally connected society, the use of a range of web 2.0 tools, wireless mobile devices (smartphones), and participation in a community of practice comprised of student peers and a content expert (lecturer) focused upon creating student-generated web-based blogs. Rather than a prescribed curriculum delivered by course lecturers (pedagogy), the research for this module is driven by student's projects guided by the lecturers as participants in a dynamic learning community (heutagogy).

The outcomes of the SHU Design community of practice include:

- Developing an understanding of the roles of digital identities in online communities.
- Designing and developing a professional online presence (Wordpress blog) suitable for inclusion in student's e-portfolio using multi-media techniques and ubiquitous hardware and software.
- Gaining experience in international group collaboration.
- Becoming ambassadors for using mobile web2.0 tools within the student design community.

The SHU Design community of practice (COP) is to our knowledge the first COPs of its nature to be established within the Design Department at SHU. Students will be using Twitter as a communication and collaboration tool, Wordpress blogs for documentation in project logbook style, photo-sharing sites including Picasa and Flickr and YouTube VODCasts, along with Google Plus Hangouts. The web-based content generated by the SHU Design students will be shared and critiqued by the wider international COP via commenting thus generating international conversations.

The same second year students will use their Wordpress blogs throughout the rest of the year, and potentially into their third or fourth year of study.

3.4 Beuth University (DE)

The project at Beuth University of Applied Sciences in Berlin is embedded within General Studies for bachelor and master students from all faculties. The module "Web 2.0 and the society" is one of the series of modules in the area of technology of sociology. Thematically, it focuses on how social media/web 2.0 changes society in such areas as science, business, politics, journalism and art. The course integrates invited talks from experts in different areas that are delivered online via a web conferencing system – Adobe Connect. These presentations are recorded and documented in the course video channel on Vimeo. Another key element of the course are hands-on sessions in which students test and use different social media/web 2.0 tools, such as wikis, blogs, microblogs etc. The practical application of the tools is connected with establishing contact to social networks and communities outside of the university with the aim of building Personal Learning Networks (PLNs). These networks include peers from universities participating in the iCollaboration project. The engagement in social networks and communities of practice aims at enhancing exploration of current practices in the use of social media in different contexts, such as commercial, educational and civic engagement, in different countries, particularly the ones involved in the iCollaboration project, as well as at understanding the benefits of sharing of ideas and resources. Parallel to these activities, students run their e-portfolios in which they demonstrate how well they understood the theoretical models and current discourses through reflecting on selected real-life examples. Students build up their e-portfolios in the course of the semester, enriching them with new elements and technologies as they tap into the web 2.0 world. Each student uses a personally selected set of tools to build and design their e-portfolios.

The outcomes of the modules include:

- Understanding social media/web 2.0 and how it changes practices in various societal domains.
- Connecting to social networks and communities outside of the university to get insight into current practices and discussions related to social media/web 2.0.
- Engaging in discussions with invited experts in virtual settings using web conferencing, blogging and microblogging etc.
- Creating e-portfolios to document and present personally relevant learning experiences.

- Developing a number of social skills through international collaboration.

3.5 Universitat Rovira (ES)

The Universitat Rovira i Virgili participates in the project by involving 20 second year students of the School of Education, who are taking a compulsory course on Educational Technology. We thought that including a little module related to Mobile Learning would contribute to a better understanding of the wide range of possibilities they may face as future-to-be teachers at the time that they could experiment with the mobile devices that constitute a very relevant part of their daily life. Basically, the main aim of this module is to introduce learners to a theoretical approach of Mobile Learning, to explore and deepen into it as learning methodology and to encourage them to deepen into its potentialities to Foster collaboration.

Thus, learners are asked to produce and share their content with their international mates by using different web-based toos and by making use of their mobile devices when that is posible. Since these are students of the School of Education, there is a special focus upon reflective practice and on the pedagogic implications of Mobile Learning. Another focus would be the exploration and creation of educational content by means of different mobile applications.

Since this is part of an international project, learners are also encouraged to socialise and participate through social media in both content production and content curation. The intercultural exchange among participants constitutes one of the richness of this project, so that one of the expected outcomes includes the fostering of international collaboration as a means to achieve significant learning.

3.6 AUT University (NZ)

This project at AUT University, Auckland, involved 24 knowledge management (KM) students, most of who were majoring in public relations (PR). Knowledge management is a way of deploying the resources and expertise in an organisation (Debowkski 2006). Increasingly businesses must respond to the influences of globalisation and amalgamation of organisations and as a result employees are interacting more and more through online channels which demand interpersonal skills as well as technical competency.

The KM course explores how data can become information and then knowledge through identifying patterns and understanding the context (Debowski 2006). Managing the increasing information available is a key aspect of public relations where the need for increased intercultural communication, attention on global issues and more global products has led to public relations becoming increasingly global (Gordon 2011). Social media has become a big online communication enabler with Twitter playing a key role in developing followers, providing information, announcing events and developing public opinion.

The project built on research from GlobCom (www.globcom.org), an annual project managed by the researcher, collaborating with 11 universities worldwide where PR students in global virtual teams develop a PR strategy that can be implemented in each of the participating countries (Pritchett and Gordon 2006). AUT's participation in the 2011 international collaboration project (icollab11) encourages students to develop their academic, technical and interpersonal skills through an authentic learning exercise in which they access and synthesize data across geographical boundaries using mobile devices and engaging with Twitter as a research tool.

The objective was for students to develop and implement a survey on an international and current issue that could be tailored to each of the participating countries. The survey explored the participating students' interest in the Rugby World Cup, an international sporting event that was happening in NZ at the time.

As a heutagogical exercise, the students were expected to form teams, brainstorm the questions and identify how to use Twitter to ask questions. They were to post a video of their personal profile to YouTube in order to join the icollab11 international learning community. They would then first trial the questions on another local institution (UNITEC) and then apply it abroad, seeking responses to their questions and later compiling the results and presenting them to the class, within four weeks.

The following exam question was created to measure their understanding about the influence of social and technical skills on a virtual research project: Identify knowledge management technological tools appropriate for collaboration, analyze how collaboration tools were used in an international case study

to gain knowledge from information, looking at the advantages and disadvantages in a non face-to-face situation, referring to relevant theory in your answer.

Overall the goal was for students to form online collaboration using mobile devices, to build confidence in using Twitter, and understand the impact of smartphones on knowledge management. By introducing this project in final year, it is expected the students will have a degree of competency and subsequently, confidence in identifying how they would develop knowledge from the information they obtained and understand how that this would help to build knowledge assets in another organisation.

3.7 Salford University (UK)

In the case of the University of Salford, the project is set within 2 Masters level programmes (MSc Audio Production and MSc Professional Sound and Video Technology) where learners take a compulsory module in Social Media. The aim of the Social Media module is to develop learners' practical skills and theoretical understanding of social media across a range of contexts, with an emphasis on the audio/acoustics industries. Learners develop a professionalised online presence through a range of web-based open platforms, alongside their own personal learning networks (PLNs) in order to move their practice beyond the classroom through making connections to their peers and industry experts, thus bridging education and industry. The module is learner-centred, using pre-module questionnaires and their individual blogs to highlight their areas of interest. This in turn influences module content and readings, with the aim being to encourage learners to drive their own curriculum which is facilitated by the tutor, thus moving from pedagogy to heutagogy.

The outcomes of the Social Media module include:

- Understanding digital identity and online communities
- Developing a professionalised online presence across a range of platforms
- Participatory media production and content curation (theory and practice)
- Experience social media through international learning networks
- Develop connections with practitioners and industry experts in their field

The learners will connect with their peers from the other institutions participating in the project through Twitter, Wordpress blogs, YouTube Voxpops and Google Plus Hangouts. Mobile devices will be used for just-in-time content capture and production. Through communicating and collaborating with their peers from the other student teams across the globe, they will be able to engage in dialogue and critique not only internationally, but also across disciplines.

4 CONLUSIONS

The paper outlines the development of a collaborative international project enabled by mobile web 2.0 tools. This has been an emergent process and project, as the participants have personally appropriated and modelled the use of mobile web 2.0 tools in the facilitation and sustaining of a virtual community of practice among the various course lecturers from accross the globe. In the process of negotiating and planning the project the lecturers have experimented with the collaborative affordances of various mobile web 2.0 tools that will now be appropriated by their students in forming collaborative teams. The project attempts to bridge learning contexts beyond the local formal and informal learning contexts into international collaboration. One of the keys to making this collaboration successful will be the brokering of these disperse local communities of practice into an overarching International Community Of Practice of which all the student groups will be brought into. The reified activities of each local COP will form artifacts that will be used as catalysts to afford this international brokering: for example the introductory YouTube videos, student blogs, and Twitter streams. These mobile web 2.0 tools have become essentially social and mobile enablers of international collaboration within this project. Building a core community of practice membership from the participating lecturers over a period of almost six months prior to the implementation of the project with their respective students has built up not only a toolkit for use, but also built significant trust among the lecturers. The serendipitous nature of mobile web 2.0 tools has also been illustrated by the brokering of the project beyond the initial anticipated three groups spanning two countries into six groups spanning four countries. Initial contact with several of the project members has been entirely through mobile social media such as Twitter, Google Plus, and YouTube. The establishment of these international partnerships present an exciting opportunity for future collaboration. The project also

forms an exciting catalyst for introducing pedagogical transformation from teacher-centric curriculla to student-directed and negotiated (heutagogy) projects. The outcomes of the project and student feedback will form the basis of further papers based upon the project, as space limitations do not permit further ellaboration within this paper.

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