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Learning to e-function in a brave new world: Language teachers' roles in educating for the future

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ABSTRACT

There is ample evidence that a shift towards more integration of web 2.0 in education is taking place. Surveys indicate that a growing number of schools in primary, secondary and higher education have access to web 2.0 tools, although how they are used to technologically-enhance the language learning process is a question that needs to be addressed. Quite often discussion of integration of technology focuses on specific practices, rather than considering the importance for teachers to critically assess the potential that technology holds for them to improve and innovate the language learning process of their pupils in a way that adjusts to emergent understandings of knowledge construction. This chapter aims to open the debate on how language teaching approaches can really integrate technology and language learning as part of a continual social process of shared knowledge-building and communication and one which adapts to the needs of future generations.

Keywords: TELL; language education; knowledge society; teacher education; communicative competences

1. Introduction

It seems that language education is at an important juncture right now. Teachers, students, parents, educational authorities and other education stakeholders appear to have readily accepted that technology can and should be a part of the teaching repertoire and many teachers are eagerly exploring ways to do so (European Commission 2013, Purcellet al. 2013). Language teachers have long been in the vanguard when it comes to using technology in their teaching practices, especially as the use of social media to provide opportunities for authentic communication has become more prominent in language learning environments (Demaizière – Zourou 2012, Dooly – O'Dowd 2012, Thorne 2003). The technological advances in communication tools has had an indelible impact on the way languages are being taught and learnt.

The desire to communicate and its rewards have clearly transformed the internet. What was initially conceived as a network for information exchange has quickly evolved into

a global social network. This shift from information archive to a venue for human interaction is not surprising given the essential human drive to commune with others.

(Meskill 2013: 1)

Various terms have been applied to this domain in education. The more common ones in use are Computer-Assisted Language Learning (CALL), Computer-Mediated Communication (CMC), Network-Based Language Teaching (NBLT) and Mobile-Assisted Language Learning (MALL). Technology-Enhanced Language Learning (TELL) covers a wider area, from the use of videos or cameras to the use of Internet or mobile phones. The diversity of terms bespeaks the variety of ways in which some form of technology is coming into play in everyday classrooms. There are numerous specialized academic journals, books, textbooks and conferences that give credence to the notion that TELL is fast becoming an area of research that transverses all the disciplines in education.

A quick look at the numerous publications indicates that technology has a leading role in educational orientation, arguably, for many, the computer has become an everyday tool in teaching and learning languages (see Chapelle 2009, Dooly in press). Statements like this one are encouraging because the underlying implication is that teachers are trying to make sense out of change, to give orientation to what can often times feel like overwhelming forces of new ideas, new resources, new methodologies and approaches and of course educational policies that require flexibility and adaptation to the new, 'globalized' knowledge society.

This constructive engagement with change is refreshing in the face of common hyperbole and *vox populi* that often laments the 'degenerative effect' of technology and subsequent interconnectivity on future generations. It is commonplace to read editorials or hear commentaries on television or radio bewailing the younger generations' lack of attention to detail, inability to be patient, need for instant gratification and so forth. Nonetheless, observations of today's younger generation often tell another story. On the whole, this generation is made up of better-informed individuals than the average older citizen and quite often more adept at finding information he or she needs or wants to know (BECTA 2008), as well as being politically engaged (Annan 2013, Ross – Dooly 2010). As the social anthropologist Herrera puts it:

Youth are coming of age in a digital era and learning and exercising citizenship in fundamentally different ways compared to previous generations. Around the globe, a monumental generational rupture is taking place that is being facilitated—not driven in some inevitable and teleological process—by new media and communication technologies. (Herrera 2012: 333)

These changes inevitably represent new challenges to educational stakeholders from many different angles.

What counts as valid knowledge in a fragmented myriad of available information, how to make sense of such fragments, how to represent them and turn such information into coherent insights are but a few overarching questions. (Lund 2013: 77)

The question asked by Marshall (2002:1) still rings true, “We’ve wired the schools — now what?” Recent studies show that it is not yet possible to claim that technology has been fully integrated into language teaching, despite the many advances made thus far (BECTA 2008, Dooly 2009). Such contradictions indicate that it is a propitious moment to take a step back and apply some critical reflection on what we are doing and where we are going as concerns the use of technology and language learning.

2. Facing the questions

Before facing the posed challenges, it behooves us to first step back, distance ourselves a bit, and ask ourselves: ‘Why change?’ At first sight, the question may appear to be redundant; after all, the aforementioned reports all indicate that technology is already practically ubiquitous in homes, offices, schools and almost all public spaces in many parts of the world. For language teachers, the answer to the question of ‘why change’ may be self-evident. However, it can be argued that if one does not fully comprehend the reasons behind the need for transformation, it is really difficult to know in what direction one wants to go. And of course, that begs the question: ‘what changes?’ Many may have heard the saying ‘why fix something that’s not broken?’ For teachers who believe in technology and its potential for transformative knowledge-construction, integrating technology into the learning process may be seen as the only way to go. But what about the colleague who is an absolutely fabulous language teacher and the most technologically advanced resource he or she uses is chalk? Should he or she be pressured to change? Arguably, if the answer is yes, then this person would need to be presented with solid, well-founded reasons for doing so –posing, therefore, the added need of sound research into the use of technology in language education.

Of course, when we ask: ‘Why change?’ one of the first answers that inevitably comes to mind is that society is changing. Few people will say that society has not changed rapidly in the past few decades and most people will name communication – better said ‘easily accessible, economic and efficient global communication’ as one of the main factors for global and social transformation.

And for education, this does not only mean that technology is easily and cheaply available; global communication creates a deeper impact on teaching and learning than simple availability. The role of education in the ‘global social network’ (Meskill 2013:1) is often at the forefront of social and political debate as conventional education institutions struggle to keep up with and adapt to rapid technological changes that affect the way individuals organize and interact in their daily lives.

Today, teachers are preparing students to find tomorrow’s jobs –many of them in professions that do not even exist yet. Most predictions about future jobs include descriptions of remote working, facilitated through cloud-driven communities and crowd-sourcing techniques, thus underscoring the need to be able to cope personally and professionally with the conditions and challenges of working, communicating and ‘living’ with others digitally (Wagner 2011). This implies that teachers must make decisions about what to teach and how to teach it based on objectives and competences that they cannot even imagine; at most, they can make an educated guess.

Guess work aside, one fact that language teachers can be certain of is that more and more interactions in our everyday lives are digital in some way or another. These may include international online meetings, compulsory online training sessions to keep up-to-date in certain professions or making stock investments just to name a few professional areas where digital interaction is already very present. For language education, this implies new complexity and new dimensions to domains that have already emerged in foreign language teaching over the last few decades, such as intercultural competences as well as issues of plurilingualism and lingua francas. This does not mean English as Lingua Franca (ELF) only, other languages are taking on a growing presence in online communication; the top three languages used to communicate online are English at 43.4% use, followed by Chinese with 37.2 % and Spanish with a 24.2 % usage (De Argaez 2013).

3. Teachers as e-functioning facilitators, not gate-keepers

All of these factors imply that language teachers will have a key role in what can be called students’ ‘e-functioning’. E-functioning entails many areas of competences, apart from linguistic skills, not least of which are the ability of engage with multiple literacies and to work and communicate simultaneously through multiple modalities. Of course, this last competence seems to be something that most of the younger generation is able to do effortlessly and yet the question remains; do they know how to apply these skills effectively and efficiently outside of leisure, when it comes to learning and eventually working with and through these mediums? These are topics that must be foregrounded in discussions about the future of language education.

Perhaps one of the most significant aspects of preparing citizens to ‘e-function’ in this increasingly interconnected world is to recognize that knowledge is non-linear, dynamic and is socially distributed. The Internet itself serves as an example of non-linear increment of information –we, and our students, are all familiar with online resources like wikipedia and the way it draws from crowdsourcing, many of us have participated in online communities of practice where specific individual knowledge is multiply enhanced by the members of that community –all of which are important aspects that highlight the way ‘knowledge’ comes about in ‘the knowledge society’. Siemens (2008) talks of learning in networks, which embodies the concepts of situated and distributed cognition, and collective intelligence; Sternberg (2010) poses that today’s information-based knowledge society requires a capacity of ‘thinking together’ in what the author calls ‘participatory power’ (p. xv). Consider the example shown in figure 1 illustrating the potential of crowdsourcing. It took gamers only *ten days* to solve a problem that scientists had not been able to resolve in over *ten years*.

Figure 1. Example of crowdsourcing

Gamers solve puzzle which stumped scientists for years and could hold key to curing AIDS

By LAURIE WHITWELL

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Videogame players have solved a molecular puzzle that stumped scientists for years and could hold the key to finding a cure for AIDS.

A team of gamers needed just ten days to produce an answer to an enzyme riddle that had eluded experts for more than a decade.

The feat was accomplished using a collaborative online game called Foldit, which has been likened to Tetris and encourages players to fold a protein into intricate shapes.



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1	46 Pro Pepside	9092
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Applying this notion of knowledge to language education implies re-thinking many pretexts of teaching, for instance the content of and materials used in language courses. To give an

example, it is estimated that there are 1,019,729.6 words in the English language (GLM 2013), with a new word created every 98 minutes (about 15 words per day). Students' state of interconnectivity (and subsequent notion of distributed knowledge) implies that students can easily be exposed exponentially to words that the language teacher has never heard of before. How can teachers possibly begin to encompass all of that in their classes? Should they? By shifting the focus to teaching language learners how to 'e-function' –and calling into play 'strategic competence' (a subset of communicative competence) a language teacher might promote crowdsourcing as a strategic competence when language learners run up against a linguistic barrier.

Most teachers will agree that the main drive of education is to create self-sufficient learners who will be able to cope in a world on their own –indeed this is often cited as an objective in many national curriculum ('learning to learn'). By modeling and practicing the use of different opportunities of crowdsourcing as a resource, the teacher can begin to demonstrate to the learners this self-sufficiency. Just as with any teaching resource, the use of crowdsourcing is as varied as the teacher is creative. For instance, a teacher in primary education might ask a student to do a 'google' search in front of the class (using a projector) to see how many different pronunciations are possible of a word that is causing the class problems. The class can then decide which pronunciation they will use (based on criteria such as apparent frequency of its use and their own personal preference). This not only draws from easily available crowdsourcing material, it promotes collaborative learning among peers, it fosters a more democratic teaching process, it initiates self-monitoring of the learning process (which is empowering) and even exemplifies to the students that there are many variants in any given language (all of which are also frequent goals in national curricula).

This also takes the pressure off the language teacher to know all the words in a target language (impossible mission in the first place) while at the same time promoting a competence that students will need in the future –knowing how to find –and compare for reliability- diverse resources for communicating in all types of situations. In fact, the very nature of social media holds great potential for applying socioconstructivist-oriented teaching and learning, because of its opportunities for extended participatory social interaction and increased possibilities for student agency (Thorne [2008] 2012).

Inevitably, when debating the idea of crowdsourcing in education, the question of assessment emerges. Students in classrooms around the world today already know how to use crowdsourcing to get around obstacles. They jump entire levels in videogames, they use technology to share information, notes, school work (and perhaps exam questions). In other words, they are already taking part, at least minimally, in this dynamic, distributed knowledge construction – only they do so outside of class because,

ironically, it is considered cheating inside the classroom. The contradiction of promoting participative, shared knowledge construction on a global scale while assessing de-contextualized, individual performance of discrete language features is patent. In short, the challenges for teachers posed by Lund (2013) concerning ‘what counts as valid knowledge in a fragmented myriad of available information’ (2013: 77) does not apply only to what to teach and how to teach it, but also, how to assess this ‘myriad of available information’ while promoting its use at the same time. Therein lies another rich area for more research in language education –the development of valid assessment tools that take into account these new notions of knowledge.

4. Are we spinning our analog wheels in a digital era?

Over a decade ago, (Richards, 2002) stated that language teaching and learning is in a ‘post Communicative Language Teaching’ era. And yet, much of the research and subsequent teaching practices into TELL look principally at topics that have been under debate in Second Language Acquisition (SLA) for nearly thirty years (e.g. focus on form; focus on meaning; focus on discrete language features). There is nothing wrong with this in itself – these debates should continue, with new input from diverse and innovative experiences and inevitably different answers – or else there is no progress. At the same time, it brings up a potentially uncomfortable question: ‘If we are still exploring the same areas that have been examined in SLA for the last thirty years in classrooms *without* technology; are we asking the right questions about classrooms *with* technology?’ Moreover, this seems to beg further questions: ‘Have we changed our ways or just changed our tools?’ ‘Are we in an era of new paradigms?’

A quick historical review of teaching practices from past eras yields multiple examples of Greek teachers using dialogic learning, supported by visual aides such as the papyrus and the abacus. Hypathia (approximately 370-415 A.C.) is accredited with being the first female mathematician, apart from being a well-known teacher in Alexandria. She is said to have invented the astrolabe and the planesphere (both were devices for studying astronomy), as well as instruments for distilling water, for measuring the level of water, and for determining the specific gravity of liquids (Osen 1992). There is ample evidence of good use of resources in learner-centred, dialogic teaching that go back to years pre-dating modern education. Now, in 2013, we have examples of innovative use

of multimedia, Virtual Learning Environments (VLE), videogames and social networks to engage students in dialogic language learning. Are these examples of new teaching paradigms? Or are they examples of long-standing teaching practices that make good use of resources at hand?

Nowadays, when trying to decide their own approach to education in this ‘post Communicative Language Teaching’ era (Richards 2002), language teachers are faced with decisions of continuing with concepts of teaching that have been developed and implemented for centuries in what is commonly called ‘brick-and-mortar’ centres (formal education institutions) that mostly rely on face-to-face interventions, or –if looking for online prototypes– teachers can find models used by distance education or the much-heralded MOOCs (Massive Online Open Courses¹). Arguably, the most frequent approach to MOOC delivery is a transmission model of learning –comprehensible enough given the circumstances that these courses are designed to be valid for multiple (sometimes as high as thousands) of students across the world but which will probably not be appealing to a teacher working in primary or secondary school. A teacher may decide to adopt blended learning approaches that integrate some technology into their face-to-face teaching, however, in any case, there is still very little widespread orientation for any of these paths as to how the teacher can best prepare students for future needs.

Comparing the examples discussed in the brief historical overview of educational responses (above) with much of what has been said about the 21st century teacher (competences, skills, methods) it appears we have come full-circle. Interestingly, one of the most common features mentioned for the leading-edge teacher is the ability to use student-centred, inquiry-based dialogic teaching approaches –the same characteristics found in early Greek teaching and the same as those asserted by Dewey (1916) in his proposal for a transformative educational model in which he argued that the main role of education is to provide developmental opportunities for the individual. In short, it seems that ‘21st century teaching skills’ have been around, literally, for several millennium –from the Greeks onward, making an appearance throughout history at different points in the timeline of formal education. Does this mean that education policy really takes that long to catch up to theory and practice? Hopefully this is not the case,

¹ Recently reports make a distinction between cMOOCs (named for theories of connectivism) that rely on peer learning principles and xMOOCs, which employ traditional learning materials and delivery and are principally for commercial use and aim for a mass audience. The latter are much more predominant and the model that is referred to

instead, it is simply that worthy, sound pedagogical theory tends to endure and these notions of good practice will continue to provide a solid theoretical base for technology-enhanced language teaching and learning.

There is a caveat. When considering technology and education it is quite frequent to envision a bright future in which language teaching and learning are optimized through an integrated use of ever-expanding technological resources. Nonetheless, as Hubbard (2008) reminds us, it is also easy to imagine a more dismal future where “technology remains weakly integrated (...) and research remains fragmented” (p. 176). Herein lies a key to sound education –integration. The educational paradigms of dialogic, student-centred teaching is already in place, it is now necessary to expand this approach so that it fully integrates the holistic use of technology. Technology must be seen not as a final goal to be learnt (e.g. isolated technology classes and the occasional ‘playful’ activity in other disciplines) but as a means to an end. Moreover, this must be done with an eye to the type of interactive competences that students will need in the future. For instance, teaching students how to create and present PowerPoint presentations helps them develop important communicative skills –but will they be more likely to present their ideas in face-to-face or digital meetings? Bringing technology into the language classroom in such a way that it helps encompass ever-expanding parameters of communicative competences requires creative design and planning of “learning spaces” (Boys 2011) that include multiple environments. It can argued, then, that technology enhanced language learning has not necessarily brought about a new paradigm of teaching –it has expanded on already sound teaching premises by taking full advantage of the affordances technology can provide.

This is not to say that a paradigmatic shift is not in the offing; one which will better embody the idea of people-powered, socially-distributed cognition and more readily meet the needs of future society. Inevitably this will require long-term vision of teachers and researchers as well as policy-makers so that language education embraces technology as an integral part of communicative practices.

5. Teaching the ABC’s to Generation Z?

In order to facilitate the learning of future competences of today’s students -including technology use as a central feature of communicative practices- it is important to understand who makes up the ‘Net Generation’² and what the type

² There is still no agreement on cut-off dates for the ‘Generation Z’; some sources place it at the late 1990s, some after the Millennium. Other suggested names are the Net Generation, iGeneration, Net Gen and Post Gen (see McCrindle – Wolfinger 2009)

of future they will be facing. Wagner (2008) argues that the current generation is accustomed to instant gratification and is constantly creating and multitasking in a multimedia world. Their idea of learning is self-interested and self-driven, based on attaining competences that they themselves have pinpointed as useful for individual goals. The exception is when students are at school (Wagner 2008) taking part (some more willingly than others) in the process of curriculum learning designed for the mass, not for individuals. Inevitably this creates a tension between individualized study (hardly feasible in large-sized classrooms) and one-size fits all curriculum design. It is not within the scope of this chapter to discuss possible modifications to the entire infrastructure of public education systems. However, taking the stance that individual teachers can be agents of change, a starting point can be a better understanding of core competences that will prepare students for 21st century professions. Teachers can strive to adapt curriculum contents to include ‘learning spaces’ that allow for exploration into key 21st century practices.

And yet, the prickly question remains. As it has already been mentioned in the previous sections, many of the jobs that will be available twenty, thirty or forty years from now do not even exist, so how can teachers know what skills their learners will need? First and foremost, students will need to be effective communicators. This does not mean only oral and written communication; future generations will need to know how to communicate through innumerable different mediums -use of videos, webpages, comics, 3-D imagery, just to name a few. Teachers must recognize that their role has changed -they are not just language teachers, they are communication teachers – accountable for promoting one of the key skills for the 21st century.

What about other competences recruiters will look for in their candidates? They will need to be problem-solvers, know how to work collaboratively, be flexible in their thinking (know how to think outside the box) and be innovative (Wagner 2008). Significantly, what is central to all of these competences are *language* and *communication*. Without language it is impossible to think; without the ability to communicate, collaboration cannot take place; even if one could solve a problem without language and thinking (doubtful), it would not be possible to communicate the solution to someone else, so –a dead-end. *En bref*, language teachers are pivotal–and accountable– for future generations of citizens. So arguably the key for teaching Generation Z is ‘integration’: an approach that integrates technology, integrates 21st century competences and integrates new notions of what constitutes knowledge.

How can teachers ensure that this integration is accomplished? One of the first points is to understand that 2.0 teaching approach is *not* technology-centred; it is learner-centred. The teaching focus should be on effectively using available

resources as a means of collaboration and development of shared knowledge (recall Hypathia's use of the astrolabe). This means the teacher is no longer 'the' expert. Expert, yes; but no longer the only one. Embracing the concept of dynamic, non-linear knowledge construction in the schoolroom implies losing part of the control of what takes place inside the class— less regulation of the content and of the way content is represented and understood. It also means the planning and sequencing of 'learning events' are going to have to be more open – more open to other participants, to other experts, to other knowledge that teachers may not know that much about themselves. Of course, teachers must still develop contextualized, embedded task sequences but these should have some open-ended features as well.

The fact that all teaching takes places within very individualized contexts makes it difficult to identify broad "teacher qualities [since such elements] must be identified within the composite, dynamic environments that teachers are working in" (Dooly 2010: 292-293). However, "while the characteristics for Teacher 2.0 may be hard to measure or pinpoint as stable features, they are undeniably vital to student learning, and it is therefore useful to try and identify some common characteristics" (Dooly 2010: 293). Some identifiable 2.0 teaching skills include the ability to:

- conceptualize how to integrate the target disciplinary knowledge within an educational framework, which should include a wide range of relevant tools and technology resources;
- relate observations of the classroom situation with a framework that fosters interactive, shared learning that emerges as the students engage in interaction with their online partners;
- adapt teacher practice for presenting classroom activities and management of tasks so that these practices integrate the use of Web 2.0 across the curriculum and as an everyday part of the classroom interaction;
- coordinate and manage Web 2.0 resources effectively as a means of reaching learning goals, not as the goal itself;
- organise integrative interaction in order for students to engage with 'distanced partners' in collaborative problem- and project-based learning, requiring them to interact and share knowledge about complex, everyday questions, issues, and problems;
- implement and monitor innovative classroom structuring that allows students a variety of possibilities and access to Web 2.0 tools;
- develop classroom activities that advance knowledge creation, ownership and responsibility of the learning process, innovation and life-long learning, supported by the use of 2.0 web tools;

- design and monitor collaborative activities that promote critical thinking and creative expression;
- create new assessment methods that take into consideration the multiply-shared knowledge construction (rather than focusing on ‘individual’ knowledge) and new communicative skills acquired through the use of Web 2.0;
- help students determine their own learning goals and plans;
- teach students how to stay on task, monitor their progress and positively face the challenges and possible ‘slip-ups’ associated with network-based learning and interaction;
- guide the students in the construction of an in-class and online learning community while acting as an overt model by engaging in teacher learning communities as well;
- act as leaders for other colleagues through engagement in continuous innovation and incorporation of new Web 2.0 resources for language learning. (Dooly 2010: 294-295)

Too often language teaching is seen as being driven by the target language, thus compelling the teacher to limit language exposure and activities to only the targets given by the course book or curriculum, and then to add ‘fun’ language tasks to complement the ‘grammar’ being taught. However, that is not *effective* use of technology as a language learning tool (Thorne 2012). Efficient technology-enhanced language teaching will strive to ‘provoke’ (Dewey 1916) the learner into exploring, experimenting and creating with the target language. Above all, this integrated approach will use technology to create communicative events that promote collaboration, crowdsourcing and problem-solving, while teaching students to ‘e-function’ proficiently.

6. Final Words

Just as future professions are predicted to change dramatically, it is proposed that how we teach and learn may be unrecognizable in less than fifty years’ time. The need for personal contact, for some face-to-face teamwork will still exist; however, a large part of how people learn may be radically different. Ideally, adaptations to teaching and learning that embody an understanding of future required competences will empower many more individuals than have normally been ‘served’ by mainstream education. As language –or communication- teachers, our role in this evolution is paramount. It is up to us to exemplify sound pedagogical theories that support students’ meaningful, transformative participation in this exciting, emergent approach for language learning that sees technology as

a social practice inherent to communication. Winston Churchill once said that the empires of the future are the empires of the mind. It is a promising moment to work together to build an empire of the mind based on a sustainable development framework.

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