

DEVELOPING A PEDAGOGICAL FRAMEWORK FOR ICT USE IN LANGUAGES CLASSROOMS

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Abstract

This paper will examine the potential of classroom-based technologies from the perspective of foreign language teaching. Drawing on research conducted with final year teacher–education students and recent work in this area by Baumgartner (2004), Bartlett-Bragg (2004) and others, this paper will outline a theoretical framework for the use of ICT in language classrooms. This framework will take account of learner readiness, appropriate pedagogical frameworks and the linguistic resources that learners have at their disposal. The use of available technologies in Languages classrooms among a group of final year teacher education students and their supervising teachers is examined. The results of the research are used as a starting point for a discussion about the essential features of a pedagogical framework for languages teachers.

Introduction

The last decade has seen a huge increase in the availability of computer-based technologies to teachers of second and foreign languages. The potential of these technologies has been recognised by many teachers, but the development of a pedagogical framework within which this potential could be fully realised, lags behind the provision of hardware in most institutions. Calls for a ‘theory driven CALL’ (Levy, 1997) have been around for some time and researchers such as Cuban (2002) have devoted considerable effort towards reaching an understanding of why it is, for example, that teachers in the 1990’s were making good use of computers in their homes, but not in their classrooms, even when these were available in abundance (Cuban, 2002, p. 155). The lack of an integrated approach towards the use of technologies in teaching has been a recurring theme in the literature. As recently as 2006 the European Schoolnet ICT Impact Report stated that despite a dramatic increase in teachers ICT skills, “teachers have not yet embraced new pedagogical practice . . . more time is needed to achieve wider impact on teaching methods” (Balanskat et al., 2006, p. 44). The British JISC (2003) update also makes the observation that pedagogical issues have been “of secondary concern” (JISC, 2003, p.1) when it comes to the effective use of elearning tools. According to other researchers, even where ICT use is more common, this is often practice driven and situated, meaning that teachers are applying what seems to work without reference to a theoretical framework or consistent approach to methods (Deaney, 2004), although this research also reports that such practices do seem to change teaching practice on small but incremental basis. Given the distance from the target culture and the lack of opportunity for

most students to use the target language outside the classroom, it is vital that foreign language teachers make effective use of available technologies. It has become obvious even to the most skeptical, that ICT has the potential to greatly enhance the opportunities for real language use in and beyond the classroom.

This paper examines the use of available technologies in Languages classrooms among a group of final year teacher education students and their supervising teachers. The results of the research are used as a starting point for a discussion about the essential features of a pedagogical framework for languages teachers. The research involved 28 final-year students in a teacher education degree and examined their use of technologies during their practicum. The different availabilities of ICT and access patterns in each school were accounted for and lesson plans were analysed in order to describe at the pedagogical frameworks implicit in the plans and to assess the degree to which languages and technology outcomes had been integrated into their lessons. Finally, the role of the supervising teacher as an influence on ICT practice was examined. Sources of data included:

- an online discussion board ‘Technology and Your School’ where students made at least two detailed postings each during the course of their practicum;
- students’ accounts, supported with lesson plans, the integration of at least two different computer based technologies into their teaching while on practicum; and
- surveys of students after the practicum asking them to report on their experiences.

This data was analysed using axial coding methods (Strauss & Corbin, 1990). The key headings that emerged from this analysis were:

- patterns of availability and access;
- technology choices;
- target groups;
- lesson outcomes as an indicator of integration of technology with the lesson; and
- the influence of the supervising teacher.

Patterns of Availability and Access

Students reported the availability and access patterns in their host schools through an online discussion board that had been set up for this purpose. Students provided detailed accounts of the hardware available as well as access issues and level and quality of use within the school. Although a basic pattern of availability was present, major differences emerged in relation to each of these aspects. There were

widely differing accounts of the availability of computers in the schools and the ease of access to them. There were also contrasting accounts of the sophistication of applications and the confidence of staff in using computers. The following three examples give a clear picture of the range of availabilities reported:

S11: North High School has around 50 computers in the library and computer lab for students and one in each staff room. Each computer is connected with Internet as well as intranet. Students and staff members can communicate with each other. Each student has a password and log-in account. The students frequently made use of Internet in doing their homework, assignments and research, while some of the teachers encouraged them to use computers. Each teacher has got an e-mail address and the students can freely ask questions via e-mail.

S9: The teachers can use the computer lab for class if s/he has booked in advance. One Chinese teacher actually made use of the computer lab in his class, and use PowerPoint slideshow in teaching some words and providing cultural information to the students. I did not find any particular program other than Microsoft Word, but the teachers are allowed to install some in case in need. Regarding the school's technology policy, the students and teachers are encouraged to use the facilities effectively in order to provide comprehensible lessons and enhance learning efficiency.

S23: The College has an intranet system. Teachers and students use e-mail to communicate with one another. However, they are changing the system next year and they will be using MOODLE. (LMS) However, they do not plan on calling it MOODLE, as some of the schools which already have it in the area gave it a name which was relevant to their school community. All students and staff have to login to use the computers. The system is filtered so that students do not have access to all sites.

In three of the 28 schools, students used their own lap-tops in class, however the dominant pattern was a centralised computer lab that teachers had to book ahead in order to gain access. Maintenance and breakdowns were recurring themes. School intranets were present in 19 of the schools. All students reported desktop computers in staffrooms with internet access. Despite some practical issues, there were no availability or access issues preventing the use of ICT in a lesson, provided forward planning was used. Apart from issues such as the number of working computers available to a class, one of the main preoccupations of the student teachers was classroom management. The issue of 'control' was addressed through a number of forums and is also evident in the lesson plans presented. The following is representative of these concerns:

S22: Nothing to report yet! The kids are so naughty here that I'm afraid to take them into a computer lab! A number of things might go wrong, eg, they'd disappear en route to the lab, they'd try to nick anything not bolted down, they'd try to access porn websites without a doubt, they'd start playing music from their i-pods and phones etc. It's a shame, because I've had loads of ideas of how I could use technology in my classes. Maybe I can think of things to do with the ESL class (YR 11) as they're a really nice bunch of kids.

Which Technologies did the Student-Teachers Choose to Apply?

The students were required to provide two lesson plans demonstrating the use of computer-based technologies in the Languages classroom. In each case, they were asked to show that the target language use in the lesson was enhanced through the application of the technology. The analysis of the 56 plans revealed the following choices of technologies:

- lesson involving students creating PowerPoint with audioclip (19)
- guided web searching (11)
- webquests (3)
- e-mail projects (7)
- weblogs — introducing their class to a real audience in the target country (4)
- uploading pictures to Flickr with comments in target language (1)
- identity card using MS Word and colour/texture/insert picture function. Hyperlinked to another page (1)
- students create own wikispace (2)
- Internet research leading to PowerPoint presentation in class (6)
- Skype — interview student same age in target country (1)
- video project — (1)

PowerPoint presentations using the target language were by far the most popular choice, followed by guided web-searching and email projects. These technologies involve high level of control and direction on the part of the teacher and are product rather than process oriented. Those technologies that are more conducive to constructivist approaches to teaching were far less popular. Few of the projects involved synchronous real communication in the target language. It is interesting that the discussion board was effective in the formation of a learning community among the students. The student teachers used the discussion board as a means of exchanging ideas with each other and posing questions about the integration of technology into their lessons.

S22: Wow! You're going technology mad! I love it! It must be that Generation Y gene coming out!! I am so going to nick your idea of an internet treasure hunt for culture. I'm sure you've thought of it already, but what about contemporary Italian music? All that dodgy Il Divo stuff, etc! Maybe, if the class is beginners and has done food, you could do an Italian restaurant search of say Milan, and do food/and price comparisons, including showing them how the on-line money converter works. I don't know, it's kind of hard to imagine what they'll be interested in. Oh, or you could do a short research topic on famous filmstars, or sports stars, and if they're yr 7 & 8 get them to make a mock celebrity magazine page sensationalising the person with maybe the headline in Italian at least. I hope that's something anyway. Let me know if you think of anything else though, as I think you're onto something here!

The Target Groups

The student-teachers were all undertaking placements in secondary schools in Sydney. The students they were teaching ranged in age from 12–18 and demonstrated varying levels of technological skills. The snapshots of the target groups provided by the student teachers confirmed what is already known about generation Y and digital literacy. As a group, they are not as digitally literate as many would believe. They are very good at technologies that are useful to them in a social or personal sense, such as Facebook texting and mp3 players, however they are much less adept at transferring these skills to applications that have an educational purpose. They require explicit and detailed scaffolding to use these in classroom settings. The schools with intranet provided more opportunities for students to use technology as a part of their daily routine:

S6: There are around 80-100 computers situated here at South High. Computers are kept in the library, the staff room and computer labs. Access is available for all staff and students in the school with individual logins allocated to all users. Computer programs were not used within the classroom on a regular basis, but a computer lab could be booked for a lesson with the following language software available: Chouette; Otimo; Sugoi and NJ Star. The school has an intranet, with a common H network drive being available to all students and teachers to access and save their work. Each user, including students, receives their own X drive in which they can save any personal work.

The Integration of Technology in the Lesson

The analysis of the lesson plans revealed a strong preference on the part of the teachers for a pedagogical model that involved predetermined products and a tightly controlled process with the teacher as 'expert'. A lesson plan that included outcomes for both Language learning and the development of technological skills was taken as one indicator of successful integration of language and technology in a lesson. Only 10 of the 28 student-teachers produced lesson plans with outcomes for both language and technology. Only 7 of the 28 demonstrated an awareness of the level of scaffolding required for the chosen technology. This was evidenced by the focus on the linguistic outcomes and the lack of modelling of the application of the technology on the part of the student-teacher.

The Role of the Supervising Teacher

For all the student teachers, the role of the supervising teacher was extremely influential in determining which choices would be made in relation to technology. Only 12 of the 28 students reported that their supervising teachers were regular users of computer based technologies in their day to day teaching. The discussion board made clear the differences in attitude and patterns of use:

S11: Internet is often used by high school students for the research. Primary school students usually use computers to type their writing. Every teacher seems to be comfortable with using computer technology. When they have a problem with using computers, they always assist each other. The school put an importance on using computer technology as much as possible. In primary school classes, ICT skills are included in the unit of work so students learn to use computers through many different classes.

S22: The school has three computer labs in the library so students can access to computers with their own login. Two smart boards arrived last week for language teaching and they are awesome! Unfortunately, I have no chance to use it in the classroom but tried to demonstrate with a Chinese teacher and it was amazing.

S25: The computer programs such as Ni Hao game, Ni Hao Lab, Tei Hao Le, French market, Chinese Albums are used to enhance language learning. Generally, the language teachers think it is difficult to use technology in language classes. However, students are encouraged to present their assignments using technology such as power points, DVD player and so on.

Discussion

A number of factors stand out from the results. Firstly, the choices of the student-teachers around technology were surprisingly narrow. Second, their general approach when using technology was, in general, very teacher centred. Third, the real integration of technology into the planned outcomes of the lesson was achieved in only a minority of examples. The next part of this paper will address the possible causes for this phenomena and the ways in which they might be addressed through teacher education programs.

The narrow choices of current technologies available for use in languages education. Recent years have seen a revolution in the technologies available to language teachers. The interest in CALL (Computer Assisted language Learning) has become enormous and the literature in the field is significant. The lists of CALL conferences become longer each year and more and more teachers are looking for ways to add technology to their teaching. Interactive computer based technologies are making synchronous and asynchronous communication more and more available to classroom teachers at all levels. The Horizon Report (2008) points to a list of emerging technologies that will become commonplace in the next 2–5 years. One example of this is the ready availability of mashup tools that allow teachers to create web pages that aggregate and compare data from a number of sources, including blogs, wikipedia or Google Earth or podcasts in a foreign language. Other examples include mobile broadband and collaboration webs.

It should be obvious that apart from the ubiquitous PowerPoint, teachers now have a plethora of technologies to choose from to assist their efforts to provide their students with good examples of authentic language and cultural texts in the target language. Using sites such as Podomatic.com, teachers can record and post podcasts to their own websites or blogs and students can subscribe to these via rss feed or the like. Teachers can and do make use of digital recording software such as Garageband in order to send sound files of authentic language to their students via email or the school's intranet. Even the virtual world of Second Life is being used by languages educators (Ruberg, 2008). This luxury of choice gives rise to a number of questions about appropriate and effective uses of technologies and what might be described as best practice.

The average age of teachers in Australian schools is 46 years (Albion, 2003). Most began their teaching in the age of the cassette player and slide projector and would have had no training in computers as a part of their teacher preparation. As Albion (2003) points out, it is also fallacious to assume that graduating students, as a group, are adept at integrating technology into their teaching. Nevertheless, teachers are faced with a rapidly changing classroom environment that is challenging and perhaps for some, overwhelming. Brown and Warschauer (2006),

writing about the American experience, point to poor integration of technology into teaching and the inadequate preparation of student teachers in terms of effective use of technology in the classroom. These authors nominate two causes for this — firstly, the teachers limited expertise in using computers and secondly the lack of effective modelling of instructional strategies ‘that incorporate technology (Brown & Warschauer, 2006, p. 600). Lack of equipment is not a problem — at least in the contexts surveyed for this paper.

Developing a pedagogical framework for ICT use in languages’ classrooms

The classroom application of ICT has come a long way since Warschauer (1996) identified the so-called three phases of Computer Assisted language Learning (CALL) as: (i) Behaviouristic CALL, (ii) Communicative CALL, and (iii) Integrative CALL – multimedia. The theoretical framework Warschauer (1996) presented is not only inadequate in the face of the new possibilities for synchronous and asynchronous communication in a foreign language but also in the face of a rapid development from communicative language teaching to a kind of post-modern pragmatic eclecticism that means that there are as many teaching methods as there are teachers. The effective use of such resources requires an educational theory of technology (De Castel, 2002) that teachers can relate to their own situated work.

A useful starting point for making sense of the plethora of possibilities is to revisit the word *technology* and ask what exactly we understand to be the meaning of this term. Nordkvelle (2004) discusses the different implications of defining technology as a process — “the operating principles of any art of science” and seeing technology as an artefact — a resource or tool. For Ferre (1995), “technology is not so much *the application* of knowledge as *a form* of knowledge, one persistently dependent on technical skill.” If we are to develop an “educational theory of technology” (De Castell, 2002) and investigate technology from the “standpoint of educational values and purposes” it would seem to be much more productive to see technology in terms of the broad, if somewhat archaic definition, that focuses on the way things are done rather than the reification of a process.

We know that teacher decision-making is often very situated and based on implicit knowledge of what seems to work in their particular classroom. The resulting gap between theory and practice is a problematic that has been addressed by a large number of researchers. According to Hatton (1997), the effects of “prior experiences” encourage teachers to “eschew pedagogic knowledge and adopt a non reflective orientation to their work” (p. 242). For student-teachers, the way to address this gap seems to be via their willingness as teachers to find solutions to problems within their own classroom while broadening the resources they normally apply to solving such problems. In other words, using action research on the integration of technology into teaching, seems a very logical way to develop a

strong theoretical base for technology related choices as well as developing a positive disposition (Young, 1992) to finding out more about what is happening in their classes.

Developing a framework that takes account of students' abilities in the target language. As explained above, most of the student teachers surveyed for this project were not applying a pedagogical framework to the use of ICTs in their classes. Developing such a framework requires that the student-teachers are able to take into consideration three aspects relating to the needs of the learners. These are: 1) the model of teaching and learning; 2) learner readiness; and 3) stage of language development. The pointers for these dimensions are summarized in the following table.

Table 1: Dimensions of the Framework

Dimension 1. The Model of Teaching and Learning and the role of the Teacher (Baumgartner 2004)
Model 1 To Transfer knowledge <ul style="list-style-type: none"> • Teacher as the expert and keeper of the knowledge • Teachers responsibility to transfer knowledge to the learner • Results focused-production of correct answers • Communication is preset and controlled
Model 2 To acquire compile and gather knowledge <ul style="list-style-type: none"> • Learning as an active process, which has to be planned, revised and reflected upon by the learner • Teacher provides a learning environment where learners are able to examine the necessary knowledge to solve the presented problem or task • Presentation of predetermined problems
Model 3 To develop, to invent, to construct knowledge <ul style="list-style-type: none"> • Teachers provide an environment where learners can invent new things- generate new knowledge — it needs to be sufficiently complex, real uncertain, instable and unique • Teachers and learners are immersed into a situation where the outcomes are not pre-determined • Teacher becomes a coach or guide and may not be able to solve all problems • Communication is open and entwined — both teacher and learner will learn from each other
Dimension 2: Learner Readiness
LEARNER TYPE 1 <ul style="list-style-type: none"> • Novice learner - requires extensive support and scaffolding • Dependent learner -limited learning experience • Low experience with technology - low levels of digital literacy • Will be distract by technology
LEARNER TYPE 2 <ul style="list-style-type: none"> • Some experience in self direction but needs support and guidance • Semi-dependent learner — will require support to adapt to skills required for self-direction. Use of milestones and checkpoints necessary. • Some experience with technology — limited to standard programs and will require

assistance with new software
LEARNER TYPE 3 <ul style="list-style-type: none"> • Highly self directed learner • Independent learner -does not require guidance • Digitally fluent - is able to transfer
Dimension 3: Stage Of Language Development (Based on Common European Framework of Reference for Languages)
BEGINNER <ul style="list-style-type: none"> • Works with very limited vocabulary • Uses memorized Chunks of the Language • Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. • Can interact in a simple way provided the other person talks slowly and clearly and is prepared to help.
INTERMEDIATE <ul style="list-style-type: none"> • Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. • Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.
ADVANCED <ul style="list-style-type: none"> • Can understand the main ideas of complex text on both concrete and some abstract topics, Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without significant strain for either party. • Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.

In applying these considerations, the student-teachers should also be developing a taxonomy of technologies that could be applied to different stages in language teaching:

- technologies that enhance practice in the language;
- technologies that enhance simulated meaningful use of the language;
- technologies that enhance real-life and/or real-time communication.

A strong pedagogical framework for the integration of technology into language teaching will take all of these aspects into account. It will be evidenced in lesson plans that account for outcomes in terms of the language exponents to be taught and the technological skills required. It will also make student-teachers more conscious of the model of teaching and learning they are applying and of their role within that model. It also means that choices of ICTs and approaches to teaching will necessarily be broadened. It is a framework that begins with pedagogical considerations rather than foregrounding the ICTs.

Conclusion

The results of this research underscored once again the need for teacher-educators to develop an 'educational theory of technology' and model this explicitly for future teachers. The suggested framework provides the kind of resource student-teachers and teachers need when considering choices around the use of technology in the classroom. Future research could involve student-teachers using this framework in an action research project during their practice teaching periods. This would provide excellent data on the application of the framework as well the development of the students own dispositions to learning in this area.

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