Digiteachers: Media Culture in the Teacher Education Classroom

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Integrating Computer Technology in the Second Language Classroom: A Window Into Teachers' Experiences

Dina Tsoulos, McGill University

dina.tsoulos@mail.mcgill.ca

Introduction

Throughout the twentieth century and into the beginning of the twenty-first century, technological innovations have always influenced the classroom. Innovations ranging from listening aids to more recent computer technology have not only served to enhance instructional delivery, but have also apparently facilitated the learning process for learners of all ages by creating more authentic experiences for students in the second/foreign language classroom. Because of the popularity of computer technology and today's workplace demands for computer skills and digital literacy, more educators are accepting the integration of computer technology into the learning process in an effort to meet the needs and interests of their learners. The integration of the computer and subsequent technologies are sparking "a new area of innovation" (Kern & Warschauer, 2000, p.1) in the second/foreign language classroom. Teachers need to use computer technology not simply as an "add on", but as an effective tool that promotes student-centred, constructivist learning. How can educators tap into the existing and rapidly changing

computer technology and integrate this in a sound pedagogical manner in a foreign language classroom? Even though there has been a focus on the integration of technology in the K-12 classroom from the student perspective, there is a gap in the literature related to teachers' perceptions of computer technology and their own experiences to using such technologies within the second language classroom. By examining the teachers' perspectives (their experiences, perceptions, and challenges), guidelines and suggestions on effective integration and changes to teacher practice can only then be formulated. This will be the basis of a future research study that I will explore.

This paper will examine the diverse literature using computers in the second/foreign language classroom. The first section will address the reasons why educators should integrate computer technology in education (millennial learners' experiences, digital divide, and digital literacy concerns). The second section will address the realities of educators' experiences with computer technology (available support, teachers' perceptions and attitudes). The third section will review the literature on effectively integrating computer technology in education in general, and more specifically computer assisted language learning (CALL) and ensuing pedagogies that have emerged. The final section will explore some examples of how current popular computer technologies (digital and web tools) have been integrated into the second language classroom by referring to teachers' experiences.

Definitions

The term *computer technology* in this paper refers to computers, specific software (CALL), the Internet, computer applications or web-based, digital tools that are being used with the purpose of enhancing learning.

Digital tools refer to tools that use both traditional and Web 2.0 infrastructure, examples include applications include wikis, blogs, and YouTube. Desk-top software such as IMovie and ITunes are also some examples.

The terms *second language classroom* and *foreign language classroom* are used interchangeably in this paper.

I. Why include technology in the classroom?

A.1 Millennial Learners

Innovations in technology have changed students' pedagogical expectations, perceptions, and learning styles. In order to meet the needs of this new *digital* or the *millennial* generation (students born in or after 1982), scholars and administrators recommend that these learners be taught using the technologies to which they are accustomed (Dede, 2005, Prensky 2001). Some emerging characteristics that define this generation are multimedia fluency, communal learning, experiential learning and being "co-designers of learning experiences" that meet the individual needs and preferences of the students (Dede, 2005). To fulfill this generation's individual needs as well as the future demands of the workplace, teachers are expected to integrate new technologies and teaching strategies into their practice so that students are better prepared for the world beyond school. By teaching new literacies, or technoliteracies, it is assumed that this new generation of students will be better prepared to cope successfully in real life situations.

While Dede (2005) argues that students will acquire new technological skills on their own and/ or by interacting with their peers and popular culture, other scholars such as Jenkins (2005) advocate the need for policy and pedagogical interventions within the school system.

Jenkins cites three concerns that speak to the need to include technology in the classroom: the "participatory gap", the transparency problem and the ethics challenge.

The unequal access to computer technology is referred to by Jenkins as the participatory gap, also known as the "digital divide". Without equitable access, the gap between the technology "haves" and the "have nots" will increase, further exacerbating the disparity in education that occurs because of location, status or socio-economic conditions. The digital divide however, should decrease as students are exposed to technology in the classroom (aside from the library or computer lab) and are taught the requisite skills (Wartella, O'Keefe & Scantlin, 2000). By using computer resources, training and pedagogy, economically and/or racially disadvantaged groups can benefit (Kellner, 2001). Moreover, reconstructing curricula ad pedagogy to include computer technology empowers students by allowing them to attain the competencies, intellectual tools and capacities to fully participate in their culture and society, thus building self-esteem – an essential feature of transformative education.

Another reason supporting the inclusion of technology in the classroom is referred to as the transparency problem, or the digital literacy issue. The vast information that children have access to on the World Wide Web has led to concerns about students' abilities to critically reflect on and to effectively assess the credibility of information in a multimedia environment. While students appreciate the Internet's ability to provide them with a plethora of information, the quality and the reliability of those resources is not something they give much consideration to. Cultivating skills in media literacy helps students use media intelligently, so that they are able to evaluate media content, deconstruct media forms, understand how meanings are socially produced, and even construct alternative media so that they able to express their own voices (Metzger, 2003).

The ethics challenge is the third main concern that Jenkins explores in his support for technology in the classroom. Recent technological advances have created new ethical challenges (e.g., privacy laws, plagiarism); as a result, new ethical norms are in the process of being established. According to Jenkins "one important goal of media education should be to encourage young people to become more reflective about the ethical choices they make as participants and communicators as well as the impact they have on others (p.17). By explicitly teaching students about ethical concerns regarding the use of technology, students will be better equipped to participate in social networks and the World Wide Web and will also be able to generate a sense of ownership, with a better appreciation for their contributions.

II. Teachers' Reality of Computer Use

A. Underuse

Despite the increase of technology in schools (Anderson & Ronnkvist, 1999; Cattagni & Farris, 2001), computers have been found to be unused or underused in most schools (Becker, 2001; Cuban, 1999, 2001; Loveless, 1996; Zhao, Pugh, Sheldon, & Byers, 2002). Becker et al's (1999) study confirmed that only 5% of upper-elementary, 4% of middle grade and 13% of high-school teachers were currently integrating computers into their pedagogy, despite increases in availability. Another study by Cuban (2001) concluded that better access to computers and related resources does not necessarily lead to more widespread classroom use. In one Canadian elementary and secondary school, Plante and Beattie (2004) reported that computers were only being used for activities such as lesson preparation, execution, or evaluation during the school year. In other words, the available computer technology was being used for administrative purposes and was not being integrated to its full educational potential.

B. Lack of Support

Although most teachers recognize the value of integrating technology in the classroom, there has been some resistance on the part of teachers to embrace computers. According to Cuban (2000, 2001), computers are not playing a significant role in teachers' teaching practices. One main factor explaining this resistance (2001) is the lack of technical and pedagogical support within schools. The teachers interviewed in Cuban's (2001) study frequently mentioned that "training in relevant software and applications was seldom offered at the times that they needed them" (p.97). Since teachers are constrained by the amount of time and energy available in the day, they do not have access to all the information and knowledge that is available, thereby affecting how much of an initiative they will undertake. Teachers need time and proper training so that they can first, understand the potential of the educational technology within their educational contexts and second, to develop assignments that are much more constructive and challenging for students.

For technology to be successfully integrated into their classrooms, teachers need school and district level support for adequate training and for a more coherent instructional vision on using a particular technology, or at the very least, technical support for when problems emerge. While teachers should be included in a more inclusive decision-making process and common educational vision, the time constraints imposed on them limit them from any reflective or enabling conversations that could help construct coherence and consistency within a system that is increasingly becoming fragmented. More specifically, they need time to assess the appropriateness of a given CALL technology based on situation-specific issues; theory and research; language learning potential; authenticity; and practicality (Hubbard, 2006, p.6).

C. Poor Planning

Poor planning, stemming from the top administration down, has contributed to teachers' limited use of computers in the classroom. According to Cuban et al (2001), "the prevailing assumptions guiding policy on new technologies in schools are deeply flawed and in need of re-assessment" (p. 830). Robyler (2003) stresses the importance of planning when addressing the integration of technology in schools. Most reports (Apple Computer Company, 1991; Broder, 1995; Bruder, 1993; Dyrli & Kinnaman, 1994, as cited in Robyler (p.28) recommend having a more inclusive plan involving teachers, administration and school district representatives to facilitate the successful integration of computer technology into students' educational experiences.

Some other reasons that Cuban (2001) refers to include "not enough or outdated and inadequate hardware, software and internet connections", "a lack of projection systems for demonstration and teaching purposes", or "scheduling difficulties in using equipment and labs" (p. 42). More planning is needed to address not only outdated equipment but the possible lack of fit with teachers' needs.

D. Teachers' Attitudes

Teachers' attitudes towards technology must also be taken into consideration. Several researchers claim that instructors' beliefs are the most essential determining factor in their adoption of computer use in instruction (Becker, 1991; Campoy, 1992; Ertmer, Addison, Lane, Ross, & Woods, 1999). Unless teachers hold positive attitudes toward technology, it is not likely they will implement it in their teaching. Hadley and Sheingold (1993) and Marcinkiewicz (1996) suggested that teachers' perceptions could be positively improved if they perceive computer

integration to be an expected and necessary component of the job. Bayler & Ritchie (2002) suggest that this can be fostered through modeling the use of computers by administration, colleagues, students and the larger professional community and by provision of support as discussed above.

Another contributing factor that may affect teachers' attitudes and use of computers in their pedagogy can be linked to the amount of technology they utilize outside of the classroom. Teachers who use computers outside of work are more likely to use computers in the classroom (Baylor & Ritchie, 2002). Teachers who use technology regularly in their personal lives realize their value and potential and are therefore more likely to have more positive perceptions of its use and effectiveness in the classrooms. Teachers' technological competence and level of comfort with computer technology also play a role in teachers' attitudes and willingness to integrate technology into their instruction.

III. Effective Integration

A. Integration Principles

In order to integrate computer technologies effectively in any classroom, Lankshear and Snyder (2000) outline four principles (based on the work of Chris Bigum and Jane Kenway, 1998) that will facilitate this process. The first principle is referred to as "teachers first". This principle emphasizes the need to have teachers authentically engage with the technology themselves before they include it within the classroom (Lankshear & Knobel, 2003, p.61). In order for this to occur, teachers need to be given the time, the space and the opportunity before applying these new technologies into their teaching. Professional development workshops, in addition to technological and administrative support, are needed to support teachers so that the

students will in turn, be supported. However, providing teachers with technological knowledge and support is not enough: teachers must also engage in a reflexive process about their current teaching practices and the infusion of technology within their pedagogy. The reflexive process can be facilitated by having teachers engage in teacher communities that allow them to talk about their experiences.

The second principle is referred complementarity, which "emphasizes the importance of understanding, in as broad a context as possible, just what is involved in adopting a particular technology" (Lanskhear & Snyder, 2000, p.122). In other words, to use a particular technology effectively does not simply involve the learning of one particular skill; rather it involves becoming knowledgeable in a variety of skills. Learning how to use new technologies such as the World Wide Web also involves using one's critical skills to evaluate the content and source's authenticity. In effect, working with new technologies such as iPod or iFilm applications demand the ability to transfer skills (for example: problem-solving strategies, collaborative work) from one medium to another (p.124).

The third principle for integrating technology in the classroom is its workability (p.124). The workability principle asks the questions, 'Does it improve the teaching and learning cycle?' and 'If there is improvement, is it a better alternative to other innovations that could be considered?' (Lankshear & Snyder, 2000, p.124). If the integration of technology is being used to its potential, then the 'workability' factor is positive. According to Lanskhear & Snyder (2000, p.126), indicators of effective integration include "providing genuine opportunities for students to acquire relevant cultural and critical understanding."

The fourth principle, the equity principle, discusses the decisions made at the administrative level regarding the allocation of resources for technologies. Some feel that

schools must allocate technology in a way that is equally accessible to all students and teachers. However, this may not be feasible or even desirable. Also, allocation of funds for new technologies should be balanced against other resources or departments. To ensure success with the equity principle, Robyler (2000) stresses the importance of planning. Planning is to be done both at the school, district personnel and instructor level to ensure a positive impact on teaching and learning. Equity, in effect, refers not only to the physical implementation of computer technology but to the development of teaching practices that foster computer and techno literacy skills.

The focus on trajectories is the final principle that is delineated. This principle takes into account 'the long view' of preparing learners for school and workplace demands. This approach is in accordance with the socio-cultural approach to learning, which views learning as "human lives seen as trajectories through multiple social practices and in various social institutions" (Gee, Hull & Lankshear, 1996, 4). In other words, engaging in meaningful learning activities is not something that occurs within the confines of a school, but outside as well.

B. Second Language classroom and CALL

A Brief History

The history of computer technology in the second language classroom, also referred to as Computer Assisted Language Learning (CALL) has evolved significantly. Over the last four decades, the integration of CALL programs has been designed to correspond with new educational theories and methods. Warschauer (reference) categorizes the development of CALL in three stages: behaviourist, communicative, and integrative CALL. These stages mirrored concurrent pedagogical strategies. The behaviourist stage can be characterized by a structuralist

approach to language learning (e.g., drill type exercises and immediate feedback); the communicative stage was dominated by the cognitive approach (e.g., text reconstruction and language games); the Integrative approach, the current stage, is influenced by the socio-cognitive and constructivist approach (e.g., focus placed on real life taks, problem-solving skills).

Many researchers (McDonough, 2001; Stepp-Greany, 2002;Warshauer & Healey, 1998) argue that a constructivist approach fits with modern computer technology and language learning since it promotes active construction of knowledge, provides authentic materials, and allows for many forms of communication. As there is no one specific method to technology-based language teaching, the pedagogy that has emerged is a combination of many pedagogical approaches. In CALL's current Integrative stage, the activities and designs emphasize the Task- Based Language Teaching Approach, whereby students are expected to complete a given task in a meaningful and authentic context characterized by project-based, focus on form methods (Levy, 2006). In integrating technology in the language classrooms, however, Chapelle (2003) cautions educators to be aware of the reasons one chooses to use technology and to be aware of the way that technology "amplifies and constrains aspects of language learning and research" (p.9). In other words, teachers need to be aware of their reasons for choosing computer technology as a tool to their lessons. Will it enhance the learners' skills? Overall, what will the students gain by using the specific computer technology in their learning? Teachers need to be encouraged to engage in this internal dialogue so that they can reflect upon their pedagogy and use computer technology in a more effective, pedagogically sound manner as opposed to an unexamined "add on".

C. Pedagogy: Changing Role of the Teacher

Evolving second language approaches bring about changing definitions of the role of the teacher and students. Current teaching methodologies, across all disciplines, define the teacher's new role as a co-learner: one who participates in the learning process alongside the students (Freeman, 1996). This view challenges the traditional idea that that teacher is the only expert in the classroom; instead, the teacher is perceived as "a chair, host, lecturer, tutor, facilitator, mediator of team debates, mentor, provocateur, observer, participant, co-learner, assistant, community organizer, or some combination of these!" (Salmon, 2000, p.5).

Within a computer technology enhanced classroom, an educator's shifting role from 'teacher to co-learner' is especially evident. With computer and electronic technology changing so fast, teachers often feel ill-equipped compared to the "digi-kids" (reference) who keep themselves updated with advances at unbelievable speeds. As seen in the *Learning with Laptops* initiative (a Montreal South Shore technology initiative that integrates technology into schools and existing curricula), natural expert groups within the classroom emerge to help the teacher or fellow classmates with technical concerns (Strong-Wilson, 2007). These 'digi-kids' in effect, are encouraged to collaborate with their peers and apply their problem-solving skills with others. Manuela Pasinato (personal communication, July 20, 2008), a teacher involved with the *Learning With Laptops Project,* claimed that "natural expert groups emerge spontaneously" and students who have more expertise in a particular area help solve technical difficulties that other students or the teacher might experience. Teachers need to be willing to relinquish the feeling that they need to experts as well as accept and model the co-learner role that they share with the students. As Strong-Wilson (2007) states, "Students are inspired to take risks and think creatively when their teachers do" (213).

Further research (Hruskocy et al., 2000) suggests that training students to serve as technology experts may aid teachers with the integration of computers into the classroom setting. As a result of sending a number of students for training in this study, teachers were observed to express a greater desire to learn along with their students. Teachers became more curious about their students' expanding computer skills and enthusiasm; in fact, they lost their reluctance to ask questions and used their students' skills to increase their own computer skills. Hruskocy et al. concluded that a teacher's expertise and dedication are necessary for technology integration to occur; in turn, students' enthusiasm can motivate teachers as well.

The emergence of today's new digital technologies (e.g., iPhones, iMovies, iPods) have for the most part, replaced the early use of computer-assisted language learning (CALL) in schools, providing teachers with new teaching tools. Incorporating these new tools, however, summons teachers towards a "new mindset" where they have to relinquish their sole expert status and also take on a role as learner. It is in this role where teachers can then transfer the philosophy of constructivism into actual practice and cultivate shared understandings through shared responsibility for instruction. As Hargreaves et al. state (2001), "teachers today are having to learn to teach in ways in which they have not been taught themselves" (p197). In effect, new technologies position both teachers and students as learners: each learning from the other in a collaborative learning environment and ultimately transforming the student from a passive recipient of information to that of an active participant. In order for teachers to assume this learner role successfully, technical, administrative, and pedagogical support need to also be provided. Although adopting these digital technologies is often daunting, many educators recognize their educational potential and popularity amongst students.

IV. Examples of Popular Technologies Integrated Using Constructivist Approach

Teachers' experiences with web tools

The majority of the studies, found in the literature, describe the integration of new technologies (web based and digital tools) from the student experience and have just briefly explored teachers' perspectives. The following section reviews some examples of technologies have been integrated in the classroom and teachers' responses. One particular web-based social networking tool that is gaining in popularity among educators is blogging. Due to their collaborative nature, blogs are being used more and more in education (Godwin-Jones, 2003). Teachers are recognizing the benefit of using this tool in their instruction. Studies indicate that blogs cannot only develop students' writing skills (Kajder, Bull, & Van Noy, 2004), but, as electronic journals, can also serve to foster students' reflective abilities (Fiedler, 2003). Oravec (2002, p. 618) claims that the blog has the ability to empower students' voice, and encourages them to become more critical in their thinking.

The classroom use of blogs is not just limited to students, but can also be integrated into teacher practice as well. Hillocke`s research (1999) shows that teachers who actively reflect, question and evaluate their own teaching practice can become expert teachers (as cited in Ray, and Hocutt, 2006). Teacher blogs can, therefore, serve to facilitate this process and studies indicate that blogs can also enhance teacher collaboration and sense of community (Khourey-Brown, 2005).

Another web-based tool that is becoming popular in education is the wiki. According to Grant (2006), the central use of wikis in education is that it promotes collaboration in writing. In effect, a group takes responsibility for creating their own content, learning from and

collaborating with one another and building upon each others' contributions and knowledge. The social collaborative aspect that wikis encourage is in line with the constructivist approach that encourages learning through negotiation and building one's own knowledge. Students in turn focus on 'learning to learn' skills that foster learner autonomy and an appreciation for life long learning. Other advantages that the literature lists include "ease of use, facility in sharing content, a focus on content and on the process of writing" (as cited in Kassen & Lavine, 2007, p. 245).

Teachers' experiences with desk-top publishing technologies

The popular iMovie application has paved the way to digital storytelling. This is another example of how new computer technologies can be integrated in a constructivist manner. Digital storytelling involves developing stories using video, photographs, drawings, animations, vice, text, and music. According to Hull & Katz (2006), digital storytelling has become "a powerful multimedia piece" (33) that allows students to creatively tells stories through print and non print (images) mediums. Within a second language classroom, the practice of traditional storytelling in a second language classroom is recognized as a valued teaching strategy. According to Pesola (1991), storytelling is "one of the most powerful tools for surrounding the young learner with language" (p.340). Not only does it support the constructivist philosophy, whereby students are creating and building on previous knowledge, but it can also enhance the four language areas: reading, writing, speaking, listening skills. In an English as a second language classroom, a recent study (Tsoua, 2006) claims that digital or multimedia storytelling can help teachers overcome challenges they might face (e.g, time constraints, organization) when incorporating traditional storytelling in the classroom.

The process of story telling not only fosters student identity but also serves as a tool for agency (Hull & Katz, 2006). They claim that another benefit to digital storytelling, is that it can heighten students' levels of motivation with the incentive of displaying their stories online to a global audience (Roland 2006; Salpeter 2005 cited in Hull & Katz, 2006). This new found voice that students have to retell their stories or viewpoints online, rooted in internal and social negotiation, can ultimately empower students' advocacy and sense of self by validating their voice, opinions, concerns and identity through their stories.

Conclusion

Educators' perceptions towards integrating computer technology in the classroom have shifted considerably over the last decades. Factors that have contributed to this shift are the widespread use of computer technology in our society and the new student expectations and learning styles that have subsequently emerged. Although educators have realized the importance of using computer technology in their teaching practice, many teachers are still cautiously embracing it. Reasons, as cited earlier, include lack of technological, pedagogical, administrative support, feelings of expertise, and overall attitudes. By providing teachers with the sustained support and learning opportunities they need, only then will teachers be willing and able to effectively integrate computer technologies a pedagogically effective manner. To better understand teachers' needs and challenges that they face when integrating new computer technologies, further research is needed into the teacher experience.

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About the Author

Dina Tsoulos is a Ph.D. student at McGill University and a former high school ESL teacher. For a copy of Dina's paper, please contact: dina.tsoulos@mail.mcgill.ca