Technologies for 21st Century Learning: Creating conditions for implementing sustained change in institutions of higher education in Chile

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Abstract

In the last decade, views of learning have dramatically changed. These changes, especially those brought about by the advent of increasing numbers of social learning technologies, are having a profound effect on a wide variety of formal learning contexts, in particular, institutions of higher learning. Once serving as bastions of information transferring and knowledge generating, many of these institutions are being forced to redefine their roles and debate their futures in view of developments in ICT and the social technologies they have spawned. Many universities worldwide are recognizing that without embracing these new technologies in their teaching and learning practices, they risk at best being in part replaced by MOOC's or Massive Open Online Course offerings (MOOC) and at worse, the reality of being deemed redundant. In this paper, I report on how three such tertiary institutions in Canada, Czech Republic and Chile, have been responding to these pressures. Initial sections of the paper focus on an emerging definition of 21st Century learning, based on social learning theories. The paper then traces the various ICT's that have been added in these institutions over the last several years, including video-based web conferencing and their pedagogical and organizational implications. The next section explains the roles and responsibilities of the various stakeholders in implementing these changes. From a critical perspective, the when, what, why and how ICTs are employed in terms of learners, learning and sustained change, are outlined. In the latter section, recommendations are suggested and future directions are identified as a means to call attention to the emerging issues that need to be faced in Chile as elsewhere, as paradigms shift and increasingly technologically-mediated interactions alter the ways learning is taking place.

Keywords: 21st century learning, social learning technologies, higher learning

Resumen

Durante la última década, los puntos de vista sobre el aprendizaje han cambiado drásticamente. Los cambios, especialmente los causados por la llegada de un número cada vez mayor de tecnologías de aprendizaje social, tienen un efecto importante en un amplio espectro de contextos de aprendizaje formales, en especial en instituciones de educación superior. Si bien en algún momento fueron bastiones de la transferencia de información y de la generación de conocimiento, muchas de esas instituciones se han visto forzadas a redefinir sus roles y debatir sus futuros a raíz de los avances en las TIC y las tecnologías sociales que las primeras han generado. Muchas universidades de todo el mundo reconocen que, si no incorporan tales tecnologías nuevas en las prácticas de enseñanza y aprendizaje, corren el riesgo de ser reemplazadas por cursos masivos abiertos en línea (MOOC, por su sigla en inglés) o, en el peor de los casos, de ser eliminados. En este informe, doy cuenta de cómo tres instituciones de educación superior en Canadá, la República Checa y Chile han enfrentado tales presiones. La parte inicial del informe se centra en la definición emergente de aprendizaje en el siglo XXI basada en las teorías del aprendizaje social. Posteriormente, el informe explora los distintos tipos de TIC que se han sumado en esas instituciones durante varios años, incluso video conferencias por Internet y sus implicancias pedagógicas y organizacionales. La sección siguiente explica los roles y las responsabilidades de los distintos participantes para la implementación de los cambios. Desde una perspectiva crítica, se bosquejan el cuándo, qué, por qué y cómo se usan las TIC en términos de los aprendices, el aprendizaje y el cambio sostenido. En la última

sección, se sugieren recomendaciones y directrices futuras con el fin de llamar la atención a las cuestiones emergentes que hay que enfrentar en Chile, así como en otros lugares, a medida que los cambios paradigmáticos y el número cada vez mayor de interacciones a través de medios tecnológicos modifican la forma en el que se produce el aprendizaje.

Palabras clave: aprendizaje en el siglo XXI, tecnologías de aprendizaje social, educación superior

The development and use of social interaction-based technologies combined with the proliferation of personal computers both for personal and formal learning settings, along with access to the Internet, is profoundly affecting institutions of higher learning. The more recent spotlight that is being shed on the role of institutions of higher learning with regard to learning, has been widespread in North America (Brakke & Crowe, 2008), Europe (Kroes, 2011) and South America (Economist, 2011). The centuries-old traditions and authorities that have been enjoyed by these institutions with regards to determining what kinds of opportunities for learning are offered and to whom and how, are being questioned and not without reason. New insights into what individuals and society will need to be productive in the 21st Century are evolving (Thomas & Brown, 2011). On the macro level, institutions of higher learning are showing signs of coming to terms with what these new insights, many emanating from research being conducted by their own faculty, will mean for the role they will need to play in this new cultural learning paradigm. On the micro level, institutions are scrambling to come to grips with the changes they will need to make in the learning opportunities they offer.

Researchers in language learning have been attempting to keep pace with the myriad opportunities for e-learning that are occurring in formal learning settings (Compton, 2009, White, 2006). In order to inform such efforts, all too often the focus of this research has been on the technical implications and program content development of programs that these technologies support. As such, this research falls short in addressing, especially from an important socio-cultural perspective, in looking at how these new opportunities for learning are having a profound influence on factors such as learner and teacher agency and identity, which have been much less explored and reported. Identity and agency have been shown to be critical factors that are particularly relevant to these interactive environments and the emerging paradigm of learning in the 21st Century. With the dearth of research in this area, e-learning programs are left without sound theoretical support. Too easily, e-learning initiatives are the result of decision- makers' intuition, limited experience in technology on the part of educators and/or traditional views of pedagogy and/or outdated theory on the part of ICT designers. The results of these initiatives are often disappointing, and more importantly costly, not only for the institutions themselves in terms of sustaining long-term interest and a return on investment from their IT supported-programs, but more importantly for learners and their learning, as well as for teachers and their developing practices. Over the last 15 years, I have worked and researched in a variety of institutions of higher learning- a Canadian government department's language and professional training program, a foreign language training centre at a Czech military university, and more recently, a teacher training program at a private university in Chile. In each of these sites, I have conducted e-learning initiatives and research projects, specifically involving social–based technologies. In this paper, I note the successes and deep challenges I have faced in leading, developing and/or supporting sustainable-learning initiatives using technology. My aim is to offer some insight into

the lessons I have learned in navigating change. I also hope to add to the current debate on ICT in the literature and to encourage a conversation on social learning technologies, particularly in my current context in Chile. I consider debates on the use of ICT in Chile are still in many ways in their infancy and yet are deeply needed. Before beginning a description of previous experiences using social interactive technology in the context of formal learning, I outline the theoretical basis upon which the paper is written and briefly define what is meant by a new learning culture that is emerging for the 21st Century.

1   Theoretical Perspectives of Emerging 21st Century Learning Paradigms

In the field of foreign and second language education in which I have worked, the communicative method has dominated approaches to teaching and learning for over three decades. Grounded in the social interaction theories of Leon Vygotsky (1981) and fellow Russian theorist Mikhail Bakhtin (1981), the theories maintain that learning by its very nature is social. Their work paved the way, in a broad range of multi-disciplinary education fields, to a view of learning as an inter-subjective activity that leads to intra-subjective activity, in other words cognition. Further to this view, is the belief that learning involves the dialogic and co-construction of knowledge. From this perspective, understanding the socio cultural context and tools, including the technological tools, in these learning settings becomes essential, if we are to provide optimal conditions for learning to take place.

While these theories in the field of second language education have been widely accepted, translating them into pedagogical practice has proven problematic. The stubbornly slow adoption of social learning practices in second language education, have been well researched. Explanations are found in a variety of reasons including resistance to let go of structural-grammatical approaches, deficiencies in teacher training methodology, learner bias and expectations, as well as the conflicting elements within institutional pedagogical policies and evaluation practices. It appears in the latter case that the progressive approaches that learning institutions encourage teachers to use in their teaching practices, are at odds with the content they are expected to teach as well as the methodologies, i.e. the assessment tools, used to measure the outcomes of that teaching.

Closely connected to the theoretical perspective of learning as dialogic, is the importance that is placed on learner identity and agency. According to Weedon's theory (1987) of identity, all social interactions are structured by power relations. These power relations are embedded in Discourses (1998) – ways of speaking, acting and thinking that stem from individuals' historical, political, cultural, personal and linguistic affiliations. These Discourses structure and define the nature of interpersonal exchanges and the roles that speakers assume in the exchange. So too in a pedagogical setting, Discourses that are present there have a lot to do with the identities learners and teachers take on within that particular context. It is important to point out that learners' identities, according to Weedon's theory, are dynamic and can change given the nature of the learning context and how it evolves. Changes to learners' identities are in part governed by whether their symbolic resources such as the intellectual, cultural, or personal experiences are recognized. Depending on whether these resources are recognized or rejected, learners can resist or accept the power structures that are at play in the learning setting. Also, the degree to which learners' symbolic resources are recognized in learning settings is directly related to being given

a voice. Having a voice in learning situations determines whether learners feel in control, have agency in the learning context – the agency that determines whether learners take responsibility for their learning or rely on teachers to transfer information. It is this agency that is essential to all human activity and for humans to grow and develop. I have argued elsewhere that in the new social learning spaces afforded by social interactive technologies, Discourses present in traditional learning settings are being tested and opportunities for human agency are abounding like never before.

The theoretical framework with regards to learning that characterized and preoccupied the latter part of 20th Century thinking, forms the backdrop and precursor to the emerging debate over the kinds of learners and learning that will best respond to the needs and demands of the 21st century. The social interaction theories of learning appearing at the end of the last century were meant to replace earlier theories of learning that produced conforming workers for assembly production lines and accepting consumers of information. Instead, the intention of these social learning theories is to develop generations of socially-centred critical thinkers who can be counted on to negotiate and construct new knowledge and innovation. These theories have influenced the development of a variety of pedagogical approaches - situational, constructivist and action-based learning for example, that are evident in many classrooms today.

Along with this shift to a socially-based paradigm of learning, has been the unprecedented development in technology and innovation in the last 15 years. Web-based technologies, such as Twitter, Facebook, Second Life, multiplayer online gaming and video-based web conferencing such as Skype are some of the more obvious examples of how this new paradigm of learning is revealing itself. One needs only to consider the dramatic results of recent uprisings in the Arab world to witness the power of social interactions supported by these technologies to produce change. Massive protests by students in Chile, directed at the system and policies of higher education, are another clear example. According to Thomas and Brown (2011), almost limitless knowledge sources combined with ubiquitous connectivity that these technologies are making available, are allowing individuals to communicate and collaborate with groups large and small and are leading to a new evolving culture of learning. A growing body of literature is predicting that this new culture of learning will have a profound influence on formal learning pedagogical practices, and most especially in higher institutions of learning.

In my work in ICT over the last decade in three diverse institutions on three continents, I have witnessed and investigated three distinct evolving cultures of learning developing in these spaces and how the use of technology has been able to support and or challenge the movement to a more social-cultural perspective of learning. This work has produced a doctoral study as well as numerous other projects, international and local. In the next three sections, I reflect on these investigations and their findings as a whole, guided by the following questions: What are the conditions needed in institutions of higher learning to successfully harness current and evolving technological forces? How can we use these technologies in our institutions to provide opportunities for sustained and effective learning, learning that will equip learners for the 21st century cultural paradigm? How can these forces be employed to change not only views of learning, but more importantly learning approaches and practices? What are the roles of the various stakeholders in these institutions in helping to create and sustain changes to teaching and learning practices, supporting and supported by well-grounded theories of learning and technology? These questions will serve to support the recommendations I provide at the end of

the paper that could be helpful to those working in education at all levels, particularly in Chile as it considers the future of technology in its institutions of higher learning and indeed the fate of the institutions themselves.

In the next section, the three institutions and the respective projects I have initiated and been involved in with regards to technology, are explained.

2   ICT Initiatives in the Canadian Government Training Context

In order to respond to the need for access to quality language programs within a bilingual government public service, during a period of six years I worked on three major projects involving technology which were initiated at the regional and national level:

- a blended learning language maintenance program

- an inter-regional, intra-regional and international distance learning program

- a national self-study online language learning program.

The blended learning language program, Speaking to Learn, that I initiated in 2007, was developed to offer opportunities for language maintenance to employees across the region where previously they were only available in major centres. Tomoye, a learning management system licensed to the region at the time, was used for the online activities in the program. Teachers, some who also happened to be experts in ICT, worked not only on developing the program, including the online activities, but on pushing the limits of the technology. The very complex text-based interface was redesigned with images and user-friendly features. Forums were created to encourage learner discussions between in-class sessions. Communities of learners' spaces, resembling a Facebook page, were made available for adding links to YouTube videos, blogs and pictures as well as depositing course and resource material. Significant qualitative data using ethnographic methods were collected over two years of the project.

Findings indicate learners progressed not only in their knowledge and ability to use the language, but also in terms of their second language identities. Many reported that they went from being shy and hesitant to speak in their other language at work, to being confident speakers in authentic situations. Importantly, some teachers also reported changes to their teaching approaches, adopting more learner-centred practices and a facilitator-style role in the classroom. This particular finding added further support to my earlier claims that ICT, if used to support social interaction, will serve to bring about quality language teaching approaches that historically had been resistant to change. Strong interest in the program led to it becoming a regular offering in the region and to be launched nationally across Canada.

Despite these positive findings, the complexity of the interface of the Tomoye software and the lack of flexibility of the interface, were found to strongly influence learners' participation at the community site. Teachers` efforts to have the technology replaced by a more user-friendly one, were unsuccessful. Management at a higher level had chosen to buy the licences and the decision could not be reversed.

Eventually, a new Learning Management System (LMS) was introduced in the Department to replace the Tomoye, but technical and administrative issues, not to mention an unfriendly text interface rendered it impossible to use.

The second project that was initiated at the Canadian site began in 2007 for 8 weeks and consisted of conducting an online distance language learning program supported by a video-based web conferencing technology, called Waveasy (see Figure 1). State-of-the-art at the time, this Web 2.0 technology offered synchronous multi-streaming data transmission and allowed groups of up to nine participants in diverse regions across Canada to meet with a teacher for communicative-based language learning, in either French or English. Desktop sharing and breakout rooms and ease of use were added features of the technology. The project was considered highly innovative and received support by the national R& D section of the Department.

Figure 1: One view of the Waveasy classroom

Findings from this project, involving 18 employees in one region alone, revealed that the online discussions had positive implications for learning, learner identity and teaching approaches for most of these participants. Leaners in this particular study, dispersed across the region had reported enormous challenges in accessing quality language training programs in their areas. The opportunity to meet online to develop all linguistic skills, but most especially their speaking, was an advantage not only linguistically but professionally as well. In the international cohort of the same project, a doctoral study was conducted by a collaborating researcher in the Czech Republic (Cechova, 2010). Quantitative data form this research indicated a significant change in the written, oral and listening capabilities of learners that took part in the online discussion sessions as opposed to those who had used self-study materials (see Figure 2) and those who due to scheduling issues were only able to participate in traditional classes.
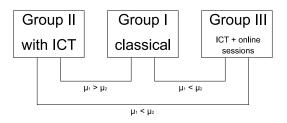
Figure 2: Favourable results of online sessions (Group III)

Along with these findings, in the Canadian site many participants reported a change in previous ways they understood learning - from the view of language learning as a rule or structure-based process to recognizing it as a negotiated, dialogic activity that influences their confidence in using the language beyond the classroom. Bandwidth and hardware installation issues had to be addressed on a case-by-case basis. With regards to bandwidth, efforts on a national level to pressure government to add the infrastructure needed to support those in remote areas of the country as yet have not received attention. The project experience subsequently led to other regional language programs being offered online using the *Waveasy* technology and was adopted at the national level as a full online version of Speaking to Learn.

More recently, government management in language training has decided to terminate the *Waveasy* license and instead *Webex* is being used as an alternative. The latter favours an information transfer approach, through Power Point presentations with weak VOIP capability and minimal video capacity. Anecdotal evidence and observation suggest that many facilitators, especially in language training, are not able to maintain prolonged learner interest. Attrition is reportedly high. Most people in the absence of a highly trained facilitator sit passively and say nothing and are easily distracted by other things in their office environment.

A third project was to pilot test a multimedia program to public servants across Canada. The program developed in-house at significant expense to taxpayers, is intended for self-study of French and is essentially an online version of the Department`s textbook series. This program was seen as a panacea to respond to managers needs to allow their employees to have access to language training but at the same time, because the training can be done around the employees schedule would have minimal disruption operationally. Data collected from individual interviews of focus group participants as well as questionnaires of the larger group of participants over 8 weeks of the pilot with 160 government employees revealed initial response from employees and their managers to be very positive but turned around dramatically after only a few weeks. Results of a pre and post pilot evaluation of the linguistic progress of the 15-member focus group of participants were disappointing with some data even suggesting an actual loss of linguistic competencies. This lack of sustained interest in the self-study program adds further evidence to what Katherine Nielson (2011) found in the first conclusive study of commercial versions of similar language learning self-study programs, *Rosetta Stone* and Auralog's *TELL ME MORE*. Nielson's study was similar as well in that it was conducted with government employees, but in the American government context. Her study in the use of these self-study materials revealed that "The most striking finding was severe participant attrition (p. 210). Data analysis on the few participants who actually used the programs in her study, albeit only for a few weeks, showed little or no linguistic progress. In the Canadian context, despite the disappointing findings from the pilot and delays of over a year to find an English equivalent to the program, the Canadian government department continues to market the online tool. Government managers, who

recognize the tool as a quick fix to meet their responsibilities in offering bilingual training to their employees, have apparently been eager to purchase the software.

3   ICT Initiatives in the Czech Military University Context

At the military university with which I collaborated in research projects for over eight years, learning English is considered essential given the mandate that the institution has in preparing their students for their role in military partnerships with Europe and North America. From a pedagogical perspective, these individuals are westernized and far more exposed to English than former generations who struggled to shed the cloak of communism. They are technology savvy and are frequent users of the *World Wide Web*, mobile phones, text messaging, *You Tube, Facebook, Skype* etc. In the period of my work there, learners had 24/7 access to Internet, although despite numerous requests to military university management Wifi was not yet available on campus. The lack of Internet access in classrooms imposed significant issues for teachers and students alike. Many teachers relied on out-dated tools - audio cassettes, photocopied material and or whiteboards to teach their lessons and shied away from developing a Moodle site that was available to them, beyond using it for an information and/ or course material repository.

During a six-month teaching assignment at the university, I became aware of a distance program used by some of the faculty supported by *LMS Barborka* technology. The technology supported social interaction between teacher and in-service military for the purpose of language learning. Given the limitations of the tool, these interactions were asynchronous and primarily restricted to written exercises, albeit based on materials relevant to their fields of expertise, completed by the learners and then corrected and returned by the teachers. A discussion forum was available although it seemed to be less used as it too was writing-based which proved time-consuming for all involved.

Despite the limitations, findings in this project indicated that the increased co-operation with students resulted in more active participation in the program content as well as during the lesson itself than in traditional face-to-face classrooms. From a social learning perspective these efforts to encourage learners' agency had significant benefits to both teaching and learning processes. The teaching-learning process required collaboration and co-operation with other members of the faculty, who specialized in the area that reflected the materials used in the online classes. Also, the learners themselves took a much more active role in the learning process both in terms of the content and their own responsibility in actively working alone in the site and at a distance. A majority of the participants showed a preference for this form of learning as opposed to traditional classroom learning, both for its convenience and the opportunities it provided for quick feedback and interaction with others in the community of learners. In other words, the students' involvement motivates both sides of the educational process and influenced them qualitatively (Cechova, 2010).

In another application of technology, using *Moodle* in the Czech site, military university students were tasked to initiate discussions with others in the class by researching and submitting articles, *YouTube* videos and audio podcasts on a course theme. A total of 120 students were required to post their submissions on the *Moodle* website for others to view and to write follow-up summaries and opinions. The analysis of their submissions showed that this use of the

technology provides opportunities for engaging students outside the classroom sessions in ways that benefit their language learning. Importantly, the findings clearly indicated that through the negotiation of meaning that they took part in within the forum, they also had an opportunity for developing their creative and critical thinking skills, not to mention their knowledge of the global context. This knowledge and these skills will increasingly be important to them as they work and live in the 21st Century culture. As Sykes et al. (2008) in their study of various Web 2.0 tools have pointed out: "when new media is put to wise use, we see tremendous potential for an increase in the ecological relations between the language practices and identity dispositions developed within instructional L2 contexts and the broader pluri-lingual communicative contexts of life outside of the academy" (p. 539).

The commitment on the part of the university to encourage distance learning using a broad range of technologies is another clear sign of its commitment to technology for learning. A policy was put in place to support both distant and traditional classroom learning. Indeed, dual access to learning is offered at the bachelor, masters and doctoral study program level. The distance programs reportedly have placed a great deal of pressure on faculty who offer the programs on line to accommodate the interests and learning needs of learners as opposed to pre-set generic programs typically used in the past. Students in both forms of learning have to fulfil the same requirements, although students who participate in the combined study programs are also working fulltime in the military. The significant and increasing numbers of students taking part in distance learning from the Faculty of Economics and Management and the Faculty of Technology indicated the extent to which these programs were embraced by students and teachers.

Despite the encouraging signs at the University of Defence, including management's verbal support for development in the area of ICT, progress in other areas has been slow. Unavoidable economic constraints, aging technological infrastructure, cutbacks in resources and heavy teaching loads have created in many cases insurmountable challenges for all but a few teachers interested in researching and promoting the use of Web 2.0 technologies. Also in the distance programs, evidence of an emphasis on knowledge transfer on the part of some teachers' approaches and information manipulation by learners suggests the need for further development in the design of these programs to meet 21st century learning requirements.

4   ICT Initiatives in teacher training programs at a private university in the Chilean context

The third context that has served as subject of investigation in the use of ICT involves a leading private university in Chile. The department is responsible for preparing teachers of English for all levels of the education system throughout Chile. It is a significant task, as the country, one of the strongest GDPs in South America, realizes the importance of English to its future in an increasingly global economy. There is much to be done to enable teachers to take advantage of the technologies that are available to them in order to ensure effective and efficient English language learning - something that has reportedly eluded educational efforts to date. In the context of a significant part of student populations erupting into large-scale demonstrations over the quality of learning offered to them, looking at what needs to be done becomes especially critical.

Since arriving in Santiago in January 2012, I have observed and experienced first hand challenges that no doubt are at the bases of some of the disappointments that these student demonstrators express in the educational system - teachers who resist change, new initiatives that are not sustained, as well as a lack of infrastructure in the public system. At the private university where I work, a major initiative has begun to offer a new faculty-developed curriculum in the training of teachers. Along with this initiative, there seems to be recognition on the part of most of the English teaching faculty that technology is integral to the success of the new curriculum. Yet, to my knowledge a new strategy for the comprehensive use of social learning technology in programs remains to be developed at the Department or university level. To date, the use of technology to support learner agency and social learning approaches appears to be limited to the initiatives of individual teachers. An exception is a blended learning program that allowed for a mix of self-study using stand-alone remedial multimedia software, i.e nicknamed drill-and-kill exercises in the EFL literature. The access to the software combined with normal attendance at in-class sessions were expected to support learners who had been signalled out as needing extra pedagogical support. Qualitative research data that I have collected over two years in the context of a quality assurance process of the New Curriculum revealed, that for most participants in these remedial programs, feedback was generally negative and attrition was almost 100 percent after a few sessions. Teachers on the other hand, reported in interviews that the programs were successful in terms of helping learners be "informed about the subject matter"- which suggests a contradiction to the competency-based aims of the New Curriculum program (teacher interview, May 2012). In other words, the technology chosen was ill-suited to support the kinds of learning that these at-risk future teachers needed to develop their language skills.

Findings from the 2-year study also revealed further challenges with regard to the use of technology for teaching and learning in the language teacher training program. Access to Internet is limited on campus due to protective firewalls that prevent the use of many Web 2.0 technologies in classrooms. Wifi bandwidth is extremely slow and deters most efforts to rely on Internet either in the classroom, for researching or for accessing authentic materials, as well as or for social interactive activities within face-to-face classrooms. Determined teachers are left to scramble to find their own solutions in order to incorporate social learning technologies into their classroom practices. In my own work with pre-service teachers, I have struggled to exploit these kinds of technologies to expose future English teachers to the global dialogue that they will need in the future to maintain their other language and to adequately draw from authentic materials for their own practices. For example, wishing to connect students to native speaking 'experts' in fields of interest that coincided with class discussions required me to hold the class of sixteen individuals in my office where access to Skype is possible, albeit with special permission. Also, during each semester, individual blogs need to be set up due to the inappropriate and cumbersome nature of the university Moodle site in terms of a virtual space for interactivity for my students. The latter scenario exists despite good intentions on the part of the Physics department which is in charge of adapting the Moodle free-ware for use by faculty. Individual interview data exposed the frustrations of many teachers in the program and their reluctance to use the official Moodle software.

Repeated calls for an improvement in the infrastructure, according to middle management have fallen on deaf ears despite the rhetoric that suggests that decision-makers at the university appear supportive, indeed anxious, to put in place new ways of learning involving social learning technology. That openness has yet to be translated into action. In the meantime, most faculty and

learners reported a disillusioned attitude regarding innovation and change and likewise, under such circumstances, an atmosphere of powerlessness hangs heavily over the teaching team.

On a positive note, interest generated by a demonstration of a web-conferencing system based on freeware that I have been exploring with a team of IT engineer graduate students and their professor from another university for a distance learning application in the English Department, has been encouraging. Masters students who report innovative initiatives to develop low-cost homemade whiteboards and their own multi-media programs are other positive signs of change, although limited, within the institution.

Findings from the investigations in all three institutions that I have reported on in this paper share a similar recognition, I believe - that social learning technologies could have a powerful role in their future existence. While in each site the findings demonstrate that the path taken to respond to that recognition has been different, a certain commonality has surfaced. In all three, tensions exist that are the result of efforts, or the lack of them, to put in place the changes the institutions need to make in order to reach the goals they claim to have. In the next section, I list recommendations that have evolved based on the various conclusions that have resulted from the research projects I have reported on in all three sites. These recommendations are drawn from over 10 years of working to promote the use of social learning technologies in formal learning sites and over 30 years of teaching and researching a learner-centred approach to language learning. Based on my experiences as well as what is shared by others in the field including the many dedicated individuals who have collaborated in the projects I have worked on, I consider these recommendations not as ready answers but points of discussion. There is little doubt that it is through dialogue that lessons are learned and efficient and effective solutions are found.

5   Lessons Learned

Despite the good intentions and supportive policies with regard to technology in both the Canadian and Czech sites and now apparently from initial research in Chile, a disconnect between policy and practice is clearly evident. Powerful Discourses within the institution in these sites control the use and limits of the technology that is available to improve learning. Studies I have conducted in these sites reveal that decision-makers, informed by intuition and/or advisors that lack current knowledge of the advantages and limitations of certain technologies for learning, are choosing short-term technology resource solutions. These solutions sometimes involving substantial investments are put in place without considering, the questionable gains, if any, that can be had by making such investments. In the Canadian site, for example, the decision was made to choose to continue to invest heavily in developing a self-study program, which represented significant cost to taxpayers, despite the discouraging findings from the study I and my team conducted in the site, not to mention those being reported on through other research studies. In the Czech site, where the investment was made to promote the use of interactive Moodle sites and its support of learning beyond the classroom, learners are not able to access the sites while on campus because of the absence of a wifi network. I have also learned that changes in large institutions, at least in those that I have worked and continue to work, seldom move at the same pace as those made in ICT development. Like big machines advancing in a predetermined direction, it takes enormous pressure and commitment to change the trajectories of these institutions. It is often at the nuts and bolts level, the level of the classroom, that innovations in

the effective and efficient use of technology are initiated. Most importantly, it is clear that once the decision to incorporate social learning technologies has been made at the classroom level, the enthusiastic support of well-qualified IT personnel, managers and other colleagues are essential to ensure that the potential of these tools to promote 21st century learning is met.

6   Recommendations for Future Directions

From these lessons, come policy recommendations and directions to those in institutions of higher learning, indeed all institutions of learning, who seek to exploit social learning technology and who understand the substantive changes these tools can offer to the way learning takes place.

1. Promoting the understanding of the power of technologies to create change in the way learning takes place requires more than the efforts of individuals. It will involve the energies of a majority of stakeholders in the institution who must work as a community to harness this power for the sake of the learners – hopefully, our first concern.

2. Sustained change requires sustained commitment. It is not enough to put technologies in place in hopes that they will be exploited to their potential by educators and learners. Ongoing teacher mentoring/modelling and structured opportunities for faculty discussion at the Department level need to be organized on a long term basis, as a forum for support and development in the use of these technologies.

3. Decision-maker support for initiatives involving technology that will substantially change how learning is practiced in the institution will require more than just a financial commitment. This support will need to be of a technical, pedagogical and ideological nature as well, so that all efforts of the institution in terms of learning are reflective of the understanding of the powerful role technology can play in quality teaching and effective learning.

4. Decisions regarding technology should be based more than on the persuasive arguments of technical advisors or, operationally-concerned managers. Pedagogues, engaged in researching the use of technology and who have current knowledge and understanding of the theoretical implications of using certain technologies as opposed to others, need to be intricately involved in those decisions.

5. A strategy for the use of technology is essential for the institution as a whole. This strategy should include at the outset a pilot study involving a reasonable sample of learners and over an acceptable period of time and should be conducted by a team of multi-disciplined experts. Follow-up periodic evaluation based on sound theory should look at more than usability and learner satisfaction. Changes in learning and long-term influence on learners and their learning, need to be systematically measured.

6. With the move to blended and full time online distance courses, institutions of higher learning who are installing virtual classrooms for the first time, must re-examine the nature of individual course requirements and ensure that appropriate technologies are chosen that will optimize the co-construction of knowledge and learner- learner interaction while resisting the easy information-transfer-style models used by their predecessors.

7   Conclusion

Change rarely comes easily even to organizations whose mandate it is to promote learning - the word learning itself from a latin derivative meaning to change. In Chile, where I currently work, this resistance to change seems in general especially ingrained . A recent OECD report on education prepared for Chile as a new member to this prestigious organization reveals that this resistance is not news to those whose role it is to oversee education in this country. According to this report, the vital functions of tertiary education laid out by Mineduc, or Chile's Ministry of Education include:

> undertaking profound changes to undergraduate teaching to make it globally competitive, including *abandoning rigid curricula* (emphasis added); and encouraging the development of the general and cross-cutting competencies essential for 21st century professionals, such as proficiency in English and familiarity with information and communications technology (ICT).

Yet resistance to change in the face of rapid evolutions, or revolutions, that are taking place all around us, has its price. The government department in the Canadian site announced last year its decision to cease its language training operations, unable to compete with the private sector. In the last few years, two Stanford professors in the past couple of years have given up their tenured faculty positions to offer their own distance courses appealing to thousands of worldwide learners. These new developments can be seen as warning signs. On the other hand, they also suggest opportunities for possibilities. The future could be bright for institutions of higher learning that *can* draw research and practice together and offer opportunities for 21st century learning through the use of social-based technology. Will Chile seize the opportunities that certain technologies can offer for efficient and effective change in education? Or do they need to follow the same trajectories of those who have gone before and learn their own lessons?

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