

## CULTURAL TOOLS TO ENHANCE LEARNING

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### Abstract

The cultural tools to connect, communicate, and prepare learners for future academic and workplace activities underpin today's education. In the 21st century, the use of technologies, and in particular social technologies, provide a paradigm shift in the way teachers become engaged and personalize professional development. The technologies are the cultural tools (Vygotsky, 1975, p. 3) deployed to communicate and analyze learners' realities; however, some experienced teachers are reluctant to embrace these realities. However, there are other teachers who are adopting the 21<sup>st</sup> century cultural tools to make their learning and the learning of their students relevant, social and personal. This paper examines how social practices and cultural tools deployed, in a study with experienced teachers, adds value to teacher professional development. It examines the scaffolding with social technologies to enable learners to progress to higher order development in a Zone of Proximal Development (Vygotsky, 1978) in Higher Education.

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**Keywords:** Professional development, cultural tools, experienced teachers, zone of proximal development.

### Introduction

The explosion of social technologies in the 21<sup>st</sup> century has enabled more people to become involved in the creation, management, sharing and transfer of information and knowledge. 21<sup>st</sup> century students value and use technology to achieve their academic outcomes (76%), they see technology as preparing them for future educational plans (76%) and it prepares them for the workplace (61%) (Dahlstrom, 2013, p. 1). Organizations like the United Nations Educational, Scientific and Cultural Organization (UNESCO) advocate digital literacy since it "improves employability because it is a gate skill, demanded by many employers when they first evaluate a job application. It also works as a catalyst because it enables the acquisition of other important skills" (UNESCO, 2011, p. 1) to communicate and participate in the life of contemporary existence. Not only 21<sup>st</sup> century students require digital literacy but "all citizens of the knowledge society in order to: select and apply ICT systems and devices effectively; utilize common generic software tools in their private lives; use specialized tools for work; [and] flexibly adapt to changes in infrastructure and applications" (UNESCO, 2011, p. 3). Teachers, as citizens of the knowledge society, should be knowledgeable and able to integrate digital technologies into their professional practice. Like other professionals, experienced teachers have been attending ICT inductions and capacity building sessions to acquire an understanding of digital literacy and in particular social web applications "that enable collaborative knowledge construction and creativity" (UNESCO, 2011, p. 10) Additionally in the knowledge society, learners are required "to find and present knowledge to others" (AQF (2013, p. 14) by deploying social technologies as cultural tools (Vygotsky, 1975) to ensure they are employable or future academic ready. Therefore, teachers need to embrace these cultural tools to ensure digital literacy for their learners. Many teachers have embraced the technologies by attending professional development, where they experience a different way of learning from the learning in their initial degrees. "Teachers

were collectively and independently engaged in doing, experimenting and reflecting on their concrete experience in different ways” (Senjov-Makohon, 2009, p. 189) they were interacting and collaborating. In the knowledge society collaboration and interaction are encouraged through such tools as twitter, instant messaging, web meetings and yammer to share and receive information in a timely manner to solve problems and communicate a variety of possible solutions. Videocasts with short learning segments are and can be uploaded into YouTube (Mohsin & Trinity, 2012) and these can enable learners to understand concepts of learning and gain social capital in achieving their personal goal (Lin, 2001) of learning. Blogs and wikis to further allow learners to share and socialize learning (Hsu, 2008); to collaborate, interact and reflect on their shared knowledge and content. Learners deploying these cultural tools go through a process involving planning, thinking, drafting, revising and editing to communicate or express their ideas to peers and educators. The cultural tools (Vygotsky, 1987) in the form of social technologies enable learners to solve problems and communicate their learning in a context. Learners need to construct learning, which cannot be separated from the social context of the day.

Learners need strategies to assist to further their intellectual capacities. They need guidance, thus the skills acquired during teacher professional development is imperative for the guidance of learners to differentiate and appropriately deploy the social technologies for learning and application in new social contexts. Thus, learning is different from the experienced teachers initial preservice learning; learning now requires action, interaction and collaboration in a Zone of Proximal Development (ZPD) (Vygotsky, 1978). The teachers need to be engaged through social interaction and guidance; they need to acquire and develop the appropriate cultural protocols to function appropriately in the given contexts, so that knowledge and skills are transferable to the new context. The learning needs to be active allowing teachers to make sense of the required knowledge and skills. They need guidance and in this study in the university classroom, the teacher educator guided teachers to make sense, to critically think and solve problems in real work context by structuring learning using appropriate cultural tools “on the social level, and later, on the individual level” (Vygotsky, 1978, p. 57).

The teacher educator, as the guide on the side, assists the experienced teachers to realize the benefits of the social technologies and guides them through scaffolding into the new milieu. These experienced teachers become learners who have lagged behind in the uptake of social technologies in Higher Education. Nonetheless, they are realizing the need to be knowledgeable, skillful, and able in applying social technologies in reference to pedagogical theories in relation to learning and teaching that incorporate the technologies.

### **The Challenge**

A major challenge for experienced teachers is to understand what information, knowledge and skills are required for teaching in the twenty-first century and how to best apply it to enhance learning. These teachers have been the ‘sage on the stage’; however, information is readily available for their students; nonetheless, today’s students require the appropriate critical thinking, problem solving skills and other 21<sup>st</sup> century skills, as mentioned above (UNESCO, 2011), to differentiate the mass of information presented at them. Therefore, the role of these experienced teachers is, now, to scaffold from teacher centered teaching to student centered learning. This paper discusses how the social and professional practice of a group of experienced teachers was enhanced when they deployed social technologies in their teaching to augment their students’ learning. These teachers actively engaged in the construction of authentic and purposeful learning, that they *could use the next day ...*

## The Study

This study focuses on the learning of sixteen experienced teachers who had general classroom teaching experience, but who were unfamiliar with ICT. The study observed the teachers' learning about ICT, how they were learning with ICT and integrating it into their workplaces. The study observed teacher learning in the university classroom. Vygotsky's (1962) concepts of social interactive learning and teaching in a cooperative and scaffolded zone of proximal development [*зона ближайшего развития*] (Vygotsky - Выготский, 1999) provided a model against which to investigate teacher learning. He describes the zone of proximal development (ZPD) as the "distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). In the ZPD, under the guidance of the teacher educator, individuals shape and fashion their learning environment with the prospect of becoming self-directed, lifelong learners. Although Vygotsky in his work discussed mainly children's learning, his theories have also been applied to communities of practitioners' learning (Lave & Wenger, 2003). The mention of "more capable peers" by Vygotsky himself implies a more general potential for the application of his ideas. The study utilised these ideas in relation to adult learning environments. Therefore, Vygotsky's (1999) concept of ZPD was chosen to guide the research and the data gathering and analysis.

This research applied a qualitative participant observation methodology to assist in the further development and understanding of the learning displayed by teachers in a blended mode of learning in higher education. Blended learning mode delivery entails face-to-face interaction as well as online delivery. In this case the teacher educator met the experienced educators for a designated time during the academic year in a university classroom. The other component of the delivery occurred when the whole group transferred to online mediation: WebCt (1995).

## Research Design

A qualitative research approach has been used to identify, explore, and find meaning that has been reconstructed in a reflective, critical, sceptical, and imaginative manner. The focus of this study is the learning of experienced teachers with limited ICT exposure. The methods used to gather information about the learning were comprised of three activities: participant observation, interviews, and written documentation. At the end of the fieldwork, the teacher educator verified the analysis of data.

Analysis of the data employed methods of qualitative research analysis and concept synthesis, coupled with content analysis, to constantly compare and contextualise all the facets of reality depicted by the data. This complex approach was necessitated by the application of the extensive theoretical background, the broad framework of the study and the need to completely understand the phenomenon under examination in the broad and deep world of teacher education. The data was coded according to categories based on Vygotsky's terminology to reflect the 21 observations during the field work, the three interviews, teachers' journals and their online interactions. The research showed the paradigm shift of learning and how the cultural tools were deployed to communicate and solve problems under the guidance of more capable peers.

## Analysis of the Cultural Tools

Learning was scaffolded within a zone of proximal development (ZPD) "through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). While an abstract concept, the ZPD became evident when it was realised that in this new learning and teaching environment, the teachers needed to become involved and interact with the other rather than solely rely on the teacher educator. *Some of*

*them knew more than her [Penelope] and she could learn from them.* The consequence of Penelope's learning involvement and *doing this course ... allowed her to bring more technology into her [workplace] class.* Initially, she deemed it necessary that she have control over her learning and teaching. Later she realised that, through collaboration with the other teachers in the course, she had indeed acquired skills and knowledge not yet familiar to her. She blogged that *learning is making sense ... everyone is giving me tips* Such successful learning confirms Hammond and Gibbons (2005, p. 9) contention that classrooms “with high challenge and high support are those where scaffolding is most likely to occur, and where students are most likely to be working within the ZPD”.

Penelope introduced the technologies that she learned in the university classroom into her workplace classroom. *Her own learning has been with the assistance of Patrick, Patricia and Danielle who jointly shared and problem solved the challenges of the ICT learning environment. They set up the school calendars and we all know what's happening. They scaffolded and compared their new ICT skills.* For example, Patricia said: *you see ... has similar features, so you can use it in the classroom... Last week I used audacity to record some readings: it was such fun ...* or when Patrick, an Art Teacher [,] *informed and enlightened the others with his knowledge of the Internet and the different sites, such as the Louvre and how he used mind mapping with [his] students.* Learning occurred through the guidance of more capable or knowledgeable individuals in the ZPD.

Vygotsky originally proposed the zone of proximal development (ZPD) as a metaphor. It refers to the sociocultural activities where what Vygotsky calls the intermental and intramental planes appear. The intermental plane refers to the social interactions where an individual mediates with others, while the intramental plane is where the individual, after mediation with others, internalises learning (Vygotsky, 1978; Van Der Vier & Valsiner, 1994). For example, Con said:

*it's OK, when I explain this to you (Duncan) I'm also reinforcing my own knowledge and rethinking my learning*

Or as, when it was observed that Ashley explained to David about:

*the icons, he used a similar program – ...! He felt comfortable because he could scaffold this knowledge ... now I'm starting to see some connection (meaning the ... application).*

That is, these teachers worked together, shared a common purpose and common information, and learned and internalised the different skills and information necessary for further ICT learning in the two planes.

Vygotsky (1962) also referred in the ZPD to a complex chain of activities that is dynamic and consecutively joins individuals from one link, along with all its attributes and knowledge, to the next link. This dynamic learning and enculturating process fuses, and guides the learners through the acquisition of new knowledge. Learners scaffold from previous links and acquire new knowledge and skills that they in turn pass onto other educators and so continues the chain. For example, Philomena mentioned that *Peg's been a terrific help, very patient, very thorough, step by step, and if, [Philomena] needed any help Peg seemed to know the stuff;* she was able to guide her through the learning process. Philomena also mentioned that at her workplace:

*they're helpful as well, and one in particular who is many years younger than her, he will never do anything for her. He'll say, you know how to do this, so do it yourself. He guides more than actually takes over, he'll say no, you do it yourself, which has actually made her more confident and she has actually remembered and learned it [technology].*

The teachers shared their knowledge about the various apps that they could download and place on their iphone and ipads. One of the participants mentioned that *there certainly is a different buzz in this university classroom ... you know I come home and sit o the net ... I skype to some of the others to talk about these new apps ... They were acquiring certain skills;*

*but simultaneously, they also learned to guide each other.* It also became obvious these teachers required an extensive network to develop their new knowledge and skill base and so attain their learning objectives and progress to the next transitional period of their learning. Phoebe *asked her younger brother in law, ... Polly asked her younger brother, ... Philomena and Peg asked their children, ...* Patrick allowed his students to assist him. However he was adamant in reminding them that *there are things that he can do and they can't; like sign a cheque ...*

Vygotsky (1987) maintains that learners in an interactive, social and collaborative environment follow each other's examples. They gradually develop abilities to perform certain tasks without the guidance of more knowledgeable learners. They become independent by *grabbing onto what others know and they take it from there* as Polly pointed out in her second interview. Ultimately, learners internalise knowledge by appropriately transacting with the assistance of others (Vygotsky, 1962).

The research shows that the participants started the process of socialisation in their communities on the interpersonal plane to maximise their learning and adopt the culture tools to communicate, solve problems and critically think in a variety of ways in the new learning environment. Patrick *felt comfortable in using the graphic apps now, he showed his university colleagues some of the things he was doing...* Patricia *asked him how he introduced this activity to his students* and he explained the process that he had learned in the university classroom. Similarly, Patrick found himself increasingly *using the appropriate language to explain the icons in the some of the other apps.*

In summary, through social interaction and in communities of practitioners, the teachers interconnected when the teacher educator, or more capable learners among their own groups, guided them through the task and shared in the problem solving process. The scaffolding in this ZPD encouraged a positive support system that enabled the participants to learn about the various social technologies and embrace the social realities to make their learning and the learning of their students relevant, social and personal. In understanding the social and cultural practices of their students, but in an environment in which they felt comfortable to acquire the appropriate knowledge and skills to personalize their learning, they were able to progress to their understanding of the social technologies that they could *use the next day* with their students.

## Conclusion

Although numerous conference papers, guidelines and government reports have been published describing initiatives for learning about, and with, ICT since the mid-1990s (Pearson, 2003), teacher education literature has been mute or has frequently been underrepresented in the literature (Gibson, 2004; King, 2004; Loughran, 2006; Schwille et al., 2007) on how experienced teachers learn ICT in the university environment. The literature primarily relates to student learning, as it applies in schools and to pre-service teacher education. Unlike student learning, the learning approach of experienced teachers has seldom been investigated or explained. The absence of research on the development of ICT understanding and competence by experienced teachers is noteworthy, because they represent a substantial sector of the profession. As they age, any reluctance by them to take on ICT-based curricular and pedagogical practices is likely to result in their having an increasingly problematic, and even irrelevant, place in education. Any assumption that "the same methods that worked for the educators when they were students will work for their students now... *is no longer valid*" (Prensky, 2001a, p. 3 emphasis in original). Indeed the literature indicates that not all teachers are attempting to understand social technologies, although they are realizing the need to become knowledgeable, skilful, and able in applying social technologies in their learning and teaching.

This knowledge about teacher learning concerning cultural tools (Vygotsky, 1987) in the knowledge society and socialized learning (Hsu, 2008) in the Zone of Proximal Development (Vygotsky, 1978) is important. Firstly, in understanding how experienced teachers embrace social technologies and scaffold their own learning; they begin to enhance their students' learning with appropriate social technologies connecting the technology to augment learning, with learning. Secondly, the realization of scaffolding and support in learning environments is paramount because teachers take on the role of guides on the side rather than 'sages on the stage'. And furthermore, this understanding enables a supportive and active enterprise for appropriately designed future professional development programs and to improve employability, and effectively assist the immigration of experienced teachers into the pedagogical domain of technologies-rich teaching practices that connects experienced teacher to the system of participation "that enables collaborative knowledge construction and creativity" (UNESCO, 2011, p. 10). In this domain, experienced teachers are connected socially and the cultural tools of digital technologies add value to their teaching. They become empowered by becoming digitally literate, enabling them to communicate, to participate and creatively use digital information to construct their own learning and to *use it the next day ...* for active student learning with authentic, relevant and engaging learning tasks in contemporary reality.

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