OCCASIONAL & DISCUSSION

PAPER SERIES

Contextualising the learning affordances of technology:

An in-depth look at the developing practice of two modern language teachers

Karen Haines

Contextualising the learning affordances of technology: An in-depth look at the developing practice of two modern language teachers

AUTHOR

Karen Haines

ABSTRACT

Affordance is an integral part of the practical knowledge teachers acquire while using new technologies in their teaching. This article describes the situated learning of two experienced modern language teachers using new technologies as they learned to perceive and implement learning affordances of several new tools in their individual classroom contexts, including Second Life and Wimba. The teachers identified and actualised learning affordances that allowed them to support students' learning according to their respective beliefs about teaching and learning. The implications for computer-assisted language learning (CALL) teacher development are discussed in relation to professional learning and to the enriching of effective teaching practice.

INTRODUCTION

As technology continues to develop apace, the possibilities of new tools for learning and teaching will continue to challenge the on-going learning of language teachers (Blake, 2008; Egbert, Akasha, Huff & Lee, 2011; Guichon & Hauck, 2011; Hanson-Smith, 2006; King, 2011). Teachers who use technology innovatively often find themselves in the position of learning just-in-time, while identifying specific skills and knowledge for the purposes of teacher training can feel like a moving target. A logical starting point for identifying what CALL teachers need to know is to consider the practical knowledge that experienced teacher users may already have with a particular tool(s) (Meskill, Mossop, DiAngelo, & Pasquale, 2002, p. 47). This article draws on a larger research study into the dimensions of in-service teacher knowledge acquired in the use of new digital tools (Haines, 2016a).

While the major research study was conducted with sixteen experienced tertiary language teachers in Australia and New Zealand, the narratives of just two of these teachers are detailed in this article, with the intention

of gaining more in-depth understanding of their process of development. The research question addressed specifically here is 'How do perspectives of affordance change over time for experienced CALL teachers using new technology tools in instructional environments?' As well as identifying ways in which technology use becomes more specific and contextualised for teachers over time, a number of key issues that warrant deeper consideration by learning and teaching leadership within educational institutions are highlighted, and implications for in-service teacher development are discussed.

CONCEPTUAL ISSUES

In order to use digital tools, language teachers need to acquire a range of skills and knowledge in relation to both technology and pedagogy (Hampel & Stickler, 2005; Hubbard & Levy, 2006). They need to have an awareness of the technological tools that are available as well as specific competencies in relation to their use (Desjardins & Peters, 2007; Peters, 2006; Robb, 2006). Teachers also need to understand how technology can support their pedagogical priorities in order to be able to choose whether or not to use technology (Chapelle, 2006; Chapelle & Jamieson, 2008). When teachers have opportunities to critically examine the technological options available and to make informed decisions as to their use, sound pedagogical practice begins to develop (Arnold & Ducate, 2006). In order to make such techno-pedagogical judgements, teachers need to be able to to identify the affordances of a tool for their own classroom use (Guichon & Hauck, 2011; Hampel & Stickler, 2005; Tochon & Black, 2007).

The term affordance originally related to the possibilities for action that an organism perceives in a tool in its immediate environment, based on the organism's own capabilities (Gibson, 1979, p. 127). This notion of affordance has underpinned research in multiple fields such as design, human computer interaction, and – more recently – education. In the field of computer-supported collaborative learning, for instance, Kirschner (2002; 2004) introduced the term educational affordances to describe the possibilities for learning students or teachers perceive in educational contexts, through computer-supported collaborative learning tasks.

Central to the notion of affordance is that, rather than being fixed and easily identifiable in relation to the tool itself (as in Conole & Dyke, 2004; Naidu, 2007), the degree of affordance is perceived by the user. CALL studies often look at the kinds of affordances that students perceive in technology tools and online environments (Liaw, 2014; McNeil, 2014; Rama, Black, van Es, & Warschauer, 2012). This research, however, identifies teachers' perceptions and consequent use of tools in their classroom contexts. While the attributes of a tool can be objectively described, the characteristics of teachers and the contexts in which they are working vary considerably, and so the action which results from the perceived affordances will similarly vary according to individual teachers (Haines, 2015).

Affordances can be seen as emergent over time as a teacher explores possibilities in relation to their context (Stoffregen, 2003). Tochon and Black (2007) recognise this when they describe technology integration as not about maximising the technology's affordances in an instructional context, but rather occurring when teachers work 'towards a reflective process of finding appropriate matches between those affordances and teachers' individual pedagogical priorities' (p. 296). The construct of affordance that underpins this article, therefore, suggests that perceived learning affordances are the opportunities for learning actions that an individual teacher intends to occur through the use of a tool in specific classroom contexts.

Through the use of new technology tools, teachers also have opportunity to learn about themselves, both professionally and personally. Wong and Benson (2006, p. 263) argue that professional development in the area of technology should include pedagogical as well as technical skills, but suggest that 'the process of [technology] integration is one that involves the teacher as a whole person and tends to develop its own momentum within the unique context of the teacher's work'. The development

of professional identity is part of learning (Comas-Quinn, 2011; Kirkup, 2002; Kubanyiova, 2009; ten Dam & Blom, 2006; Wenger, 1998). As teachers develop their skills in teaching with new technology tools, particularly in new online environments, their professional identity as a teacher – which, especially in the initial stages of use, has probably been challenged both technically and pedagogically – may undergo a change. In considering teacher learning in new online environments, it is important to consider teacher identity as dynamic rather than 'an inert aspect of teaching contexts and processes, or an outcome of pedagogical skills, training or experience' (White, 2007, p. 107). As well as learning skills with new tools and in new online environments, CALL teachers are learning to understand in fresh ways what it can mean to be a teacher.

In summary, teachers using new technology tools in the classroom need to develop their practical knowledge and skills of both technology and pedagogy, and this occurs largely through use and exploring new action possibilities. As teachers identify the affordances of a new tool for teaching and learning actions, and implement these in the classroom over time, they may be challenged to see themselves and their practice in new ways.

CONTEXT OF STUDY

This qualitative research project investigated the dimensions of experienced teachers' practical knowledge about technology. Sixteen participants, identified through snowball sampling from five Australasian tertiary institutions, took part in semi-structured interviews at least twice over three semesters, with the intention of gaining a deeper understanding of their on-going experiences using a new communication technology tool for pedagogical purposes in their language teaching. As part of the interviews, teachers voluntarily supplied support documents to illustrate their journeys, including teaching and reflective materials, such as classroom handouts, personal blogs and journals.

Grounded research strategies (Charmaz, 2003) informed the inductive analysis of interview data

in this study, with categories developed from line-by-line coding of initial interviews (Silverman, 2004; Willis, 2007). It became evident in the first interviews that an important aspect of teachers' knowledge in relation to technology use was their ability to perceive and implement the affordances of new tools. Accordingly, a table of perceived affordances was compiled for each teacher to record the possibilities they had identified in technologies to support learning and teaching in their classrooms. The second interview gave opportunity to get respondent feedback on the accuracy of the tables as well as identifying how their perception of affordance had developed over the six to nine months since the first interview. These tables were compared across all participants (Denzin & Lincoln, 2008) and eventually contributed to a broad typology of learning affordances perceived by language teachers using technology tools (Haines, 2016b). This present article focuses on the process of developing understanding of affordance and, in particular, on how two teachers contextualised and implemented particular technologies over time.

FINDINGS

The teachers in this study saw affordances in their tools that ranged from being generalisable to specific. In other words, affordances initially identified were for general use or for use in other classrooms, but, over time, teachers also perceived affordances that were highly individualised in relation to particular contexts, cohorts of students and curriculum needs. (See Table 1, which gives examples of the affordances recognised by the two teachers in this study.)

While the column headings in Table 1 suggest that teachers' perceptions of affordance may develop from left to right, the reality of individual development was more fluid. The process of contextualisation clearly differed for each participant and is difficult to generalise. With the intention of giving a richer and more nuanced description of teacher learning over time, the narrative-styled accounts of two teachers have been chosen to illustrate the process of contextualising technology use in the language classroom.

	Generalisable		Specific to this teacher, this context *Learning affordances that relate to…*		
	General affordance	*Learning affordance*	*… learners*	*… teacher*	
	What does the tool allow you to do technically?	What possibilities does the tool offer in terms of learning?	What possibilities does the tool offer in terms of supporting my learners?	What possibilities does the tool offer me in relation to my teaching?	What possibilities does the tool offer me in relation to my own learning?
Sarah Tool = Second Life virtual world	Students can participate synchronously in contexts outside of their classroom	Students can experience target language in real life, eg. buying clothes	Students can explore their identity in a virtual world, come back to class and have more informed discussions about presentation of self in online spaces, and develop intercultural competencies	I was able to use the tool to support the way that I wanted to teach	I was able to collaborate with overseas language teachers in Second Life
Andrea Audio-conferencing with Wimba	Students able to hear and speak to other learners	Students able to use L2 in meaningful context	Students could talk about their language issues and ask for correct pronunciations	I was able to communicate with students much better, and feel more in touch with them and their needs	I was able to develop my confidence with using new tools to support my teaching, and to become more of a facilitator

Table 1: examples of affordances recognised by the two teachers in this study.

While Sarah is a long-time user of technology for student learning, Andrea has come to CALL more recently. Their stories illustrate the implementation of tools that explore newer aspects of communication for language development, and hence may be useful for readers considering their own technology implementation. Both teachers demonstrate the importance of contextualising tool use to satisfy personal priorities around learning and teaching, as well as to cater for the needs of individual students and constraints within their programmes and institutions.

Sarah and Andrea (not their real names) are both experienced modern language teachers with leadership responsibilities in their respective departments. With more than fifteen years of teaching experience, Sarah had been using technology for almost ten of them, with a strong focus on autonomous learning. She had been using blogs and wikis with her students for several years, and had started to use the virtual environment Second Life with some of her students as a means of experiencing intercultural communication. The course she was teaching was based on experiential learning,

and she felt her role as a teacher was largely facilitative, which accorded with her interest in learner autonomy and her view that classrooms should be learner-centred.

Andrea was also an experienced teacher (20-25 years of teaching), but was a relative newcomer to using technology, with less than five years of experience. The specific technology that she discussed using was a synchronous audio-conferencing tool, one of the Wimba suite of audio tools, but she also used WebCT as part of the delivery of the course. She particularly enjoyed the possibilities that Wimba, as a synchronous tool, offered for her students who were learning language at a distance.

Identifying learning affordances

The affordances that Sarah and Andrea identified over time illustrate the way in which perceptions may become more contextualised (moving from the right-hand to the left-hand side of Table 1). Second Life, for instance, generally affords communication in a virtual environment. Sarah recognised that tasks developed in Second Life allowed foreign language learners the chance to practise the target language in communication with native speakers. These general and learning affordances may be applicable to other learners and other classrooms. However, more specifically, Sarah realised that for individual learners in her class, the virtual environment afforded authentic intercultural interactions in areas specific to her curriculum. Encouraging students to carry out tasks in a virtual environment in their own time meant that Sarah was able to use classroom time for discussion and reflection on students' experiences, which was integral to her desire as a teacher to facilitate experiential learning. As well, Second Life afforded her opportunities to collaborate with colleagues overseas.

Andrea, similarly, identified how important it was for her to design tasks around a tool to 'fit a particular course and a particular cohort of students. You don't always follow the same routine with the same tool or the same function'. She realised that affordances of technology relate to specific learners in specific contexts and are strongly influenced by what individual

teachers believe:

> It's important to see it from the beginning, as early as possible, in relation to your own pedagogy, your own course structure, what you want to achieve. … So, OK, what do you want to use this tool for then, and why? What do you want to achieve with the tool? Or what _could_ it achieve? How does it fit with the learning outcomes or do you want to attach it to a learning outcome, or is it just for keeping in touch with students?

For these two teachers, therefore, the value of the tool was in how it allowed pedagogical processes to occur in their classrooms and for their students. While Sarah had been able to make her own decisions as to which tools she would use with students, Andrea's department had invested in a particular communication tool and so she had not chosen it deliberately to match her pedagogical intentions. However, this lack of choice did not seem to influence her learning about the tool. It was clear that both Sarah and Andrea were focussed on the specific affordances for learning that the tools offered their students, as well as on the ways in which they could use the tool to teach (see the right-hand side of Table 1).

Affordances for students' learning

The recent introduction of Second Life, blogs and wikis into Sarah's classroom programme had excited her with seeing new affordances for her students' learning. Blogs and wikis were used to engage students in reflective and collaborative processes respectively. She had been able to initiate and organise intercultural exchanges through Second Life, and felt that these experiences supported her students developing intercultural competencies. Sarah identified that the use of new tools in these ways seemed to be moving students towards more quality and depth in their learning in general. She was excited 'that the students are engaging. That we can step back and they're learning from each other.' An example of the way in which tasks in Second Life, in particular, contributed to her students' experiential learning was explained as follows:

The Japanese student I had, how seeing her culture through another environment has actually highlighted things that she'd taken for granted, and she's reflecting on that – it's superb learning.'

The affordances that Andrea perceived in Wimba were related to the opportunities for synchronous interaction that the technology tool offered. As her distance students came online for the first time, Andrea enjoyed their surprise and delight at being able to hear their fellow learners and herself as teacher. She appreciated being able to communicate with students in real time, and to get to know them and 'shape their voices'. She also enjoyed the use of Wimba for specific pronunciation practice as well as for discussion of content. Whether she was teaching a literature or language class, she was able to use the different Wimba tools to develop tasks that encouraged the construction of knowledge and the development of community, both of which she identified as crucial aspects of her students' learning.

Affordances for one's own teaching

Using blogs meant that Sarah had much better access to students' reflection and was able to give input individually to students. Over the years, she had experimented with asking students to reflect in hard-copy diaries, as well as different e-portfolio programmes, but felt that the use of blogs as a reflective tool afforded her more direct access to learners and their needs:

It's opening up possibilities of things that we could never do before. … How can we monitor students developing affective and reflective capabilities… and intervene and see things aren't working, 'cause if you've got a three-week turnaround you don't know things are going wrong. If they're not doing it within a week, you can say, "Hey, everything alright? Not putting pressure on you, but you know, we're here". And then you can see immediately "Oh! I didn't teach that properly". There's no point eight weeks down the track. So it's that sort of convenience. Empowering, I suppose, is the word'.

Having immediate access to students' reflections meant that Sarah could monitor students' reactions to her comments or class input. The possibilities that Sarah identified in the tools she used related to being able to monitor students' learning and give relevant feedback.

The main value Sarah identified in technology for her as a teacher was that various tools could be used to underpin the experiential learning process that she valued and promoted in her classroom. Input for students was found in internet sources, such as YouTube, and more recently through their experiences in the Second Life virtual environment. She identified that in the last ten years generally there had been a shift in her teaching to focus on developing competency in her students rather than increasing their knowledge, a gradual change which, she said, may well have been influenced by the possibilities that technology had offered over this time. She saw her teaching role as changing to become more facilitative:

I do go in and provide knowledge, but it's learner-centred, rather than transmission. And, OK, you have to teach certain things, but I very much feel that then students need to be able to apply it rather than just rote learn. It's the application of the knowledge and skills. So I think, rather than teaching, I facilitate.

The main learning affordance Andrea perceived in technology related to communication. The synchronous Wimba tool allowed students to interact with her and with each other orally, which had previously been impossible in her distance course. She enjoyed seeing her students begin to engage with each other and had learned to extend her role as facilitator:

I see myself perhaps differently in how I do things, but not necessarily what I do, or why I do it. So I've still got perhaps the same belief about teaching emerging through dynamics that exist between learners, between me and learners, between them and themselves, through interactions I facilitate – critical thinking, asking questions, discovery learning and all these kinds of things. … I think I've come to believe that I'm more a facilitator

now than someone who stands up in front of a class.

Just as it did for Sarah, technology had allowed Andrea different opportunities to realise her pedagogical principles. She described herself as subscribing to the following:

…a constructivist type of learning: getting students involved, getting them to discover things rather than presenting them with the answers, and trying to facilitate learning rather than just transferring knowledge.

One of her higher-level classes had done a tele-collaboration project with students abroad, and the communication through Wimba that developed in this exchange Andrea described as integral to the type of constructivist learning that she aspired to for her students. She felt that her use of the Wimba suite of tools generally contributed to her goal of encouraging students to develop autonomy by becoming responsible for their own learning outcomes. The affordances of technology had meant that she could put into practice some of the principles that she felt were important for classroom learning, but had struggled to realise in her earlier experiences of distance teaching.

Affordances for teacher learning

Using new tools meant that Andrea and Sarah were reminded of what it was like to be in 'learner shoes', and also gave them opportunities for personal and professional development.

Sarah's experiences of learning gave her a better understanding of the issues students might have with technology. She had deliberately chosen to be a student herself in an online course on technology, as she wanted first-hand experience of being an online learner. Using different tools on the course, such as blogs and Second Life, helped her to appreciate how individual technology tools must be chosen carefully to suit pedagogical requirements. Creating her own blog gave her first-hand experience of what her students might feel and the degree of support they might need. She also explained how her own experience of being a Spanish student in a workshop in Second Life was a forcible reminder of what being a language student involved. 'In the end I just had to say to [the teacher], "I can't speak Spanish" in Spanish, and it was good because I felt what it was like to be a student!' Sarah's learning experiences helped her realise the need to support her students in their learning, both with the technical demands of new tools and with their engagement with learning tasks.

Andrea also saw herself as a learner when it came to using technology, and described how much of her learning of technical skills was in order to find answers to her students' questions or solve their problems in relation to access or sound. She suggested that about half of her learning occurred through her own use of the tool with her students:

I think the learning as you go is still irreplaceable, even though it's not ideal. I mean, you want to be more like 80% there before you even start. But, as I say, some things don't become an issue perhaps until you're in the situation.

Her experiences with using technology had not always been trouble-free: 'So there's still this inconsistency between promises and expectations and a reality where you can still be let down by technology'. She had had to put time and energy into working through issues relating to access, in particular, as well as supporting the tutors on her course. While she felt that technology that did not perform as promised reflected negatively on the institution at times, she persevered with its use, and said it was beneficial for her students to see her in the role of learner:

I'm willing to learn and become more confident, because I think if I can model that confidence, then hopefully they can see that that's something very useful to do, because I had to learn that.

Both Sarah and Andrea felt that learning to use technology had helped them to learn about themselves, from personal and professional perspectives. Sarah realised that she derived satisfaction from the challenges of using a new technology. The open-ended nature of the

7

virtual environment itself and the learning still anticipated gave rise to her comment that 'I get bored with things quickly. … I haven't got bored with Second Life.' She described two particular characteristics that she had developed personally in relation to her teaching – flexibility and risk-taking:

> *I'm willing to take risks, calculated risks with students and learning to be more flexible. You have to be flexible, and it's learning to have a balance between making sure that they do achieve and, not entertaining them, but making sure it's relevant and challenging. … Professionally I'm very excited about the way learning is going.*

As an experienced teacher, Sarah felt competent to explore the limits of her own teaching abilities, making appropriate judgements as to her own actions that would best support students' learning.

As well, Sarah's experiences with Second Life had helped her to see affordances in the technologies she was using for her broader professional development. She found the collegial atmosphere in Second Life to be supportive. She was able to meet virtually with colleagues from around the world and consider collaborative projects, both for teaching and for research: 'In terms of professional development, it's absolutely superb.'

She was also taking advantage of the general affordance of technology for communication to support her own professional development. With her teaching team, a wiki was being used to keep a record of the ideas for possible changes she and her team had as they reviewed their course. Rather than limiting her pedagogical activity to her own programme, she was advocating shared projects within the whole degree programme of which she was part. She described the potential for inter-faculty collaboration within her own institution and the development of language learning from a national perspective as well. All these possibilities for expansion she saw as happening 'on the back of technology'.

Andrea felt that through using technology she had learned about herself as a teacher and

researcher: 'I think I've discovered that side of myself, that [using technology] is something that suits me, but again probably because I can see outcomes that are desirable'. She had become aware of how technology use could contribute to her pedagogical need to support students' communication.

Personally, she felt more engaged with her teaching and how she did research. Her use of online communication tools had encouraged her to explore the process of using tools to do collaborative research and to find new research partners in her own department, in a different faculty and also in an overseas institution. Although the journey of learning to use new tools in her courses had not been especially smooth, she recognised that her use of technology had enhanced her understanding of herself as a teacher and made her aware of the potentials of online learning.

Actualising learning affordances in context

It is one thing to perceive how technology might afford learning in specific environments, but another to actualise learning through new digital tools. An important aspect of Sarah and Andrea's classroom implementation was their ability to work through the constraints of the tools in their individual contexts. As experienced teachers, they were able to minimise these limitations, or to find ways to exploit them for learning purposes. Constraining factors were not limited to the technology tool itself but also related to the students, the environment and to the teachers' time allowances, as the examples below illustrate.

Constraints were often inherent in the nature of the tool used. Andrea, for example, identified issues with the use of a particular audio-conferencing tool. She felt that 'natural' speaking opportunities were limited to some extent because of the attributes of the tool, both in relation to the layering of discourse and to participants not being able to see visual clues. She experimented with alternative conferencing tools, but felt that contextual factors, including both the institution and student availability at certain times of day, continued to constrain

her students' learning experiences. Sarah's vision for opening up the classroom to overseas connections was frustrated to a certain degree by the limitations imposed by being in a specific time-zone, particularly in not being able to access groups of students or teacher-input sessions on the other side of the world. As a result of this constraint, she began to realise the wealth of resource for interaction that lay closer to home, and started to explore possibilities for connection and collaboration within and between faculties in her own institution, as well as on a national basis.

Student attitudes were identified as a constraint by Andrea. She felt that, at times, students' beliefs about themselves and about language learning limited their involvement online. She described some of her students as 'learners on the fringes, for whom [technology use] is just way beyond what they think they can do or even want to do. It's too threatening or… maybe they're not interested in learning this way'. In an effort to help students understand the purpose of online tools and how they were integrated into the course, Andrea produced introductory materials and set up tasks carefully to scaffold technology use. As well as negative attitudes, she had to deal with students' online expectations. For instance, her students liked structure and wanted to be able to prepare for topics before online interaction occurred. Andrea allowed for this but was also able to find ways to include less-anticipated topics in the discussion. Sarah described the difficulty of encouraging students to see Second Life as a means for their learning, rather than as an object of study in itself. However, her own experience of learning in Second Life had helped her to identify the importance of giving students specific tasks to do, and then of reminding them of the value of learning through their virtual experiences, rather than studying Second Life in its own right.

Constraints were also present in the environment. For Andrea, the quality of broadband connection and high levels of interactivity required at the times when students wanted to be online impacted on her use of the tool. The institutional firewall was a problem for Sarah's students being able to access Second Life, as many did not have appropriate specifications on their personal computers to be able to access Second Life at home. She found ways to allow her students to log-in on campus despite the firewall barrier.

A further constraint that teachers had to deal with was the demands on their own time. From a practical perspective, Sarah had learned that one hour was long enough for students to be alone in Second Life. While allowing time during class for students to enter the virtual world, she had also tried to be present there herself in the evenings while at home so she could support students technically. Often this involved helping them to meet up with other students online so they could work together without her. She recognised the demands that using technologies made on her personally:

> But it is demanding, and I think professionally for teachers, the more you do stuff online, the more the nature of teaching is going to change, and personal time, and space, it's going to be a blurring. Satisfaction… I think it's more satisfying, but if I had young kids I don't know how I'd cope with some of the stuff, maybe go in when they're in bed.'

While time had not seemed to constrain what she felt she had been able to achieve with her students, she recognised that there was a cost to her personally in the time that she made herself available to support her students. Andrea similarly identified that her use of Wimba had involved huge amounts of time spent in problem solving. She experimented with the use of tutorial assistants as a way to get around this issue.

DISCUSSION

The next section discusses three ways in which the narratives of these two experienced teachers can contribute to a better understanding of CALL teacher learning and the process of actualising technology affordances in relation to context. Firstly, there is a high degree of teacher agency required if the use of new tools is to impact on teacher development. As well, teachers tend to identify affordances of tools and use them in ways that support their individual beliefs about learning. The final section of this discussion

highlights how these understandings can influence teacher education and learning.

Sense of agency in learning

Teachers need to take responsibility for learning to perceive and implement affordance. The narratives above demonstrate Sarah and Andrea's agency in relation to learning about and using digital tools, whether they carefully chose the tools personally or were advised to use them by their department. They embraced the challenges of learning to use a new tool with a strong sense of what they needed to learn to use the tool appropriately in the classroom. Sarah, for instance, identified not only the skills that she needed to learn about Second Life, but also those that she did not see as relevant. Fully aware of the limits of her technical ability ('I'm not very happy with my computer skills – I am limited in what I can do') Sarah explained that she was deliberate in learning the skills that she felt she needed. There were skills, particularly in relation to building in Second Life, that she had chosen NOT to learn because she felt they were not necessary for her current teaching.

Both Sarah and Andrea were active learners, experimenting with the possibilities of the new tool and working through the constraints they identified that might limit the learning affordances for their students. Supporting the learning of their students was a clear priority for the two teachers. Andrea put a lot of energy into developing resources to help her learners access and use the technology appropriately, based on what she had had to learn herself:

> *Where do you go to find these tools? Where do you click to activate them? How do you... even before you get to that stage, how do you, maybe reduce barriers for people have who have never done this before, who have never used WebCT in their learning, never had anything to do with technology?*

She created support material for distance learners, including screenshots with technical information about individual communication tools they would use, but with diagrams and metaphors to help students understand how the tools could be used to support the learning processes that underpinned the course.

Sarah similarly facilitated her students' technical learning, and spent hours in Second Life helping students to orientate themselves and feel comfortable in a virtual world. As well, she encouraged them to focus on the way that the tools supported their experiences of learning.

Technology use as a way to realise beliefs about teaching and learning

An important dimension of the implementation of affordance was that these teachers saw potential in technology to realise their beliefs about learning processes. Both teachers acknowledged that the use of technology had sustained their enthusiasm for teaching, and they related this specifically to the successful teaching and learning that they achieved through the use of new tools. Sarah was focussed on the quality of learning that her students were experiencing, and she saw her teaching as the process of helping students to engage in and reflect on appropriate online experiences. Her motivation as a teacher had grown because of the learning affordances that she perceived in blogs, wikis and in Second Life, and because she had been able to actualise these to support the experiential learning approach that she espoused.

Similarly, the affordances that Andrea had perceived and then implemented were related to her beliefs about language learning and the importance of communication in her teaching. Her beliefs about constructivist methodologies were realised in communicative tasks, with a focus on critical thinking, and she also felt that students were developing more autonomy through her use of technology. Both teachers were able to enact their particular beliefs about learning and teaching through the use of appropriate technologies.

The emphasis placed by Sarah and Andrea, two experienced teachers, on ways in which they were able to support their students' learning echoes an earlier study of primary language teachers (Meskill et al., 2002) in which expert teachers had a strong focus on student learning. Light,

Cox and Calkins (2009, p. 198), too, identify that one of the essential features offered by technology in higher education generally is 'its potential for developing learner-focused approaches to teaching'. Sarah and Andrea certainly prioritised a learner focus in their use of technology. This focus may well be attributed to their years of teaching experience as much as to their specific experiences with using technology. The fact that they identified affordances relating to communication and experiential learning may have been integral to their focus on student learning. However, both averred that the technology had made it possible to teach in ways that satisfied them professionally and personally.

These two teachers demonstrate in a number of ways the reality of Kennedy and Levy's (2010) hypothesis that teachers' use of technology in their teaching may contribute to their sense of on-going motivation. As well as having the opportunity to exercise autonomy and creativity, Andrea and Sarah had a strong sense of self-efficacy in their teacher role, which was derived from student feedback, from research and from their own observations of learning outcomes being fulfilled. As Sarah said, 'It's motivating, just keeps me going, that's what it's all about. … It's challenging and it's actually working'.

To sum up, a crucial aspect of both Sarah and Andrea's learning was seeing the possibilities inherent in language learning not just within the technology itself, but in how it related to particular groups of students, to the curriculum and to their pedagogical goals. Each valued the technology tools, not so much for what they could do technically, but for how they afforded action for her own teaching and for supporting her students' learning.

Implications for professional development

Sarah and Andrea were able to perceive the affordances of different technologies as they engaged actively with new tools in their own teaching contexts. Their perceptions developed over time and through use of various tools in the classroom. They experimented with different ways to support their students technically and pedagogically, designing material and tasks that would scaffold learning. The process of actualising affordances took time, both to recognise specific affordances in their local contexts and to identify and address constraints that might limit student learning.

For those less experienced than Sarah and Andrea, the value of supporting teachers in the process of both identifying and actualising the learning affordances of new digital tools cannot be underestimated. Further research that ascertains effective means of such support would be invaluable. Current tertiary institutional training, when it does occur, often focuses on general affordances, or on how tools operate technically, and such knowledge is frequently disseminated in one-off workshops for teachers from disparate faculties and departments. It is clear that learning to perceive and implement learning affordances takes time. When considering the adoption of new tools, language departments/schools need to provide opportunities for teachers to explore action possibilities of tools for themselves and for their students, and to share the specific affordances they perceive. It is crucial to allow time for this process, and to support the actualisation of the learning affordances of new tools.

CONCLUSION

The use of affordance as a perspective on teacher development as described in this article identifies teachers' agency in contextualising technology use to support their students' learning and their own learning and teaching. Affordances for learning are idiosyncratic to the user and relate to the attributes of a particular tool, and also to their own personal characteristics and to their varying intentions for use. Both the teachers described in this article perceived learning affordances in new technology tools that related to their pedagogical principles and beliefs about how learning occurs in classrooms (Tochon & Black, 2007). Not only were they reminded through technology use of what it is like to be a learner, but they used their own learning experiences to encourage their students. Each found that implementing these learning affordances was satisfying and

motivating, not only for the learning it afforded her students, but from a more personal perspective. Andrea describes the value that learning to use technology brought to her teaching: 'And so this process of learning to use technology has kind of put me in touch again with my learners, with my teaching, finding different avenues of engaging.' Using new digital tools in the classroom not only affords learning for students. For the teachers in this study, it afforded opportunities to engage more deeply with their students, as well as motivating them professionally and personally. The process of learning to use new technology tools clearly affords opportunities for teachers' growth and development.

REFERENCES

Arnold, N., & Ducate, L. (2006). CALL: Where are we and where do we go from here? In N. Arnold & L. Ducate (Eds.), *Calling on CALL: From theory and research to new directions in foreign language teaching* (pp. 1-20). San Marcos, TX: CALICO.

Blake, R. (2008). *Brave new digital classroom: Technology and foreign language learning*. Washington, DC: Georgetown University Press.

Chapelle, C. A. (2006). Foreword. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL*. Amsterdam: John Benjamins Publishing Company.

Chapelle, C. A., & Jamieson, J. (2008). *Tips for teaching with CALL*. New York, NY: Pearson Education Ltd.

Charmaz, K. (2003). Qualitative interviewing and grounded theory analysis. In J. A. Holstein & J. F. Gubrium (Eds.), *Inside interviewing*. London: Sage Publications.

Comas-Quinn, A. (2011). Learning to teach online or learning to become an online teacher: An exploration of teachers' experiences in a blended learning course. *ReCALL, 23*(3), 218-232.

Conole, G., & Dyke, M. (2004). What are the affordances of information and communication technologies? *ALT-J, Research in Learning Technology, 12*(2), 113-124.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2008). *Strategies of qualitative inquiry*. London: Sage Publications.

Desjardins, F., & Peters, M. (2007). Single-course approach versus a program approach to develop technological competencies in preservice language teachers. In M. A. Kassen, R. Z. Lavine, K. Murphy-Judy, & M. Peters (Eds.), *Preparing and developing technology-proficient L2 teachers*. San Marcos, TX: CALICO.

Egbert, J., Akasha, O., Huff, L., & Lee, H. (2011). Moving forward: Anecdotes and evidence guiding the next generation of CALL. *International Journal of Computer-Assisted Language Learning and Teaching, 1*(1), 1-15.

Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston, MA: Houghton Mifflin.

Guichon, N., & Hauck, M. (2011). Editorial: Teacher education research in CALL and CMC: More in demand than ever. *ReCALL, 23*(3), 187-199. doi:10.107/S0958344011000139

Haines, K. J. (2015). Learning to identify and actualize affordances in a new tool. *Language Learning & Technology, 19*(2), 165-180.

Haines, K. J. (2016a). Expanding the knowledge base of teachers' use of communication tools for language learning. *System, 62*, 102-112. doi:10.1016/j.system.2016.07.008

Haines, K. J. (2016b). Learning for the long haul: Developing perceptions of learning affordances in CALL teachers. In A. Gimeno-Sanz, M. Levy, F. Blin, & D. Barr (Eds.), *WorldCALL: Sustainability and computer-assisted language learning* (pp. 8-30). London: Bloomsbury Academic.

Hampel, R., & Stickler, U. (2005). New skills for new classrooms: Training tutors to teach languages online. *Computer Assisted Language Learning, 18*(4), 311-326.

Hanson-Smith, E. (2006). Communities of practice for pre- and in-service teacher education. In P. Hubbard & M. Levy (Eds.), *Teacher Education in CALL* (pp. 301-315). Amsterdam: John Benjamins.

Hubbard, P., & Levy, M. (2006). The scope of CALL education. In P. Hubbard & M. Levy (Eds.), *Teacher Education in CALL* (pp. 3-21). Amsterdam: John Benjamins.

Kennedy, C., & Levy, M. (2010). *Motivational strategies through CALL in the FL classroom*. Paper presented at the Antwerp CALL 2010: Motivation and beyond, University of Antwerp.

King, K. P. (2011). Teaching in an age of transformation: Understanding unique instructional technology choices which transformative learning affords. *Educational Technology, March/April*, 4-10.

Kirkup, G. (2002). Identity, community and distributed learning. In M. M. Lea & K. Nicoll (Eds.), *Distributed learning: Social and cultural approaches to practice* (pp. 182-195). London: Routledge.

Kirschner, P. (2002). Can we support CSCL? Educational, social and technological affordances for learning. In P. Kirschner (Ed.), *Three worlds of CSCL: Can we support CSCL?* (pp. 7-47). Heerlen: Open University of the Netherlands.

Kirschner, P., Strijbos, J.-W., Kreijns, K., & Beers, P. J. (2004). Designing electronic collaborative learning environments. *Educational Technology, 52*(3), 47-66.

Kubanyiova, M. (2009). Possible selves in language teacher development. In Z. Dörnyei & E. Ushioda (Eds.), *Motivation, language identity and the L2 self* (pp. 314-332). Bristol: Multilingual Matters.

Liaw, M.-L. (2014). The affordance of speech recognition technology for EFL learning in an elementary school setting. *Innovation in Language Learning and Teaching, 8*(1), 79-93.

Light, G., Cox, R., & Calkins, S. (2009). *Learning and teaching in higher education: The reflective professional* (Second ed.). London: Sage Publications.

McNeil, L. (2014). Ecological affordance and anxiety in an oral asynchronous computer-mediated environment. *Language Learning & Technology, 18*(1), 142-159.

Meskill, C., Mossop, J., DiAngelo, S., & Pasquale, R. K. (2002). Expert and novice teachers talking technology: Precepts, concepts, and misconcepts. *Language Learning and Technology, 6*(3), 46-57.

Naidu, S. (2007). If we build it, they will come! Exploring the role of ICTs in curriculum design and development: The myths, miracles and affordances. *South African Journal of Higher Education, 21*, 672-683.

Peters, M. (2006). Developing computer competencies for pre-service language teachers. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL*. Amsterdam: John Benjamins.

Rama, P. S., Black, R. W., van Es, E., & Warschauer, M. (2012). Affordances for second language learning in World of Warcraft. *ReCALL, 24*(3), 322-338. doi:10.1017/S0958344012000171

Robb, T. N. (2006). Helping teachers to help themselves. In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL*. Amsterdam: John Benjamins.

Silverman, D. (Ed.) (2004). *Qualitative research: Theory, method and practice* (Second ed.). London: Sage Publications.

Stoffregen, T. A. (2003). Affordances as properties of the animal-environment system. *Ecological Psychology, 15*(2), 115-134.

ten Dam, G. T. M., & Blom, S. (2006). Learning through participation: The potential of school-based teacher education for developing a professional identity. *Teaching and Teacher Education, 22*, 647-660.

Tochon, F. V., & Black, N. J. (2007). Narrative analysis of electronic portfolios: Preservice teachers' struggles in researching pedagogically appropriate technology integration. In M. A. Kassen, R. Z. Lavine, K. Murphy-Judy, & M. Peters (Eds.), *Preparing and developing technology-proficient L2 teachers*. San Marco, TX: CALICO.

Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge: Cambridge University Press.

White, C. (2007). Innovation and identity in distance language learning and teaching. *Innovation in Language Learning and Teaching, 1*(1), 97-110.

Willis, J. W. (2007). *Foundations of qualitative research: Interpretive and critical approaches*. London: Sage Publications.

Wong, L., & Benson, P. (2006). Teacher preparation for online language instruction. In P. Hubbard & M. Levy (Eds.), *Teacher Education in CALL*. Amsterdam: John Benjamins.

AUTHOR

Karen Haines is an academic advisor, working in Te Puna Ako at Unitec Institute of Technology, Auckland. Her research interests focus on teacher learning and practice, with current research focussed on collaborative learning spaces.