

LEARNING TO IDENTIFY AND ACTUALIZE AFFORDANCES IN A NEW TOOL

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Keeping abreast of new technologies and the opportunities they offer is a challenge for in-service teachers (Blake, 2008; Egbert, Akasha, Huff, & Lee, 2011; Hanson-Smith, 2006; Hubbard, 2007; Robb, 2006). An important aspect of teacher learning about the use of technology is the ability to identify the affordances of new tools and how they can support learning in the language classroom (Hampel & Stickler, 2005; Kessler, 2010).

This fourteen-month-long longitudinal study of the learning of two experienced foreign language teachers working together describes how their perceptions of the affordances of two computer-mediated communication (CMC) tools developed over time. Interview data collected over three semesters demonstrated how teachers' perceptions of affordance evolve through classroom practice with technology, and how such perceptions might be transferred to the use of a new tool. As well, although the two teachers used the same tools (blogs and wikis) in the same courses and, at times, with the same classes, they perceived different learning affordances in relation to the language learning processes they prioritized. The article will conclude with suggestions for ways in which a better understanding of affordance in teacher knowledge development has implications for the support of in-service language teachers' learning.

Keywords: Teacher Education, Affordance, CMC, Computer-Mediated Communication

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INTRODUCTION

General theories of learning within a social constructivist approach identify the crucial role of situated experience in the learning process (Borko, 2004; Shulman & Shulman, 2004; Wenger, 1998). For in-service language teachers, the development of skills, knowledge and understanding occurs as teachers interact with their local environments and reshape their knowledge accordingly (Borg, 2006; Mann, 2005; Tarone & Allwright, 2005; Waters, 2005). However, given the proliferation of digital technologies that have been identified over the past 20 years as useful in supporting language learning, it is hardly surprising that language teachers may find it a challenge to keep abreast of current applications and how they can be used (Blake, 2008; Egbert et al., 2011; Hanson-Smith, 2006; Hubbard, 2007; Robb, 2006). In terms of improving teacher education, it is important to identify aspects of the knowledge base for computer assisted language learning (CALL) teachers (Chapelle, 2006).

Two frequently cited frameworks for CALL teacher development identify that the skills and understandings that language teachers need in order to use technologies appropriately in the classroom relate to both technological and pedagogical knowledge (Hampel & Stickler, 2005; Hubbard & Levy, 2006). Hampel and Stickler's (2005) skills pyramid model particularly highlights the need for teachers to be able to deal with the possibilities and constraints that a new tool allows. As well as recognizing specific technical features of the tool, teachers must develop an appreciation of the pedagogical possibilities it offers. Similarly, Levy and Stockwell (2006, p. 190) warn against "developing language tasks based solely on the functionality of the computer" and reiterate that the value of the tool is in how

its features can help learners achieve pedagogical goals. The term “techno-pedagogical competence” is used by Guichon and Hauck (2011) to describe areas relating to both technology and pedagogy that teachers need. Their list of techno-pedagogical competences gleaned from the literature includes the notion of affordance in relation to teachers being able to assess the potential and limits of technology for classroom use, as well as relating task design for interaction to the affordances of specific tools. The agency of the individual teacher is important, as Tochon and Black (2007, p. 296) emphasize in what they term “pedagogically appropriate technology integration.” They suggest that “techno-pedagogy” should not be about maximising the technology’s affordances in an instructional context, but rather should work “towards a reflective process of finding appropriate matches between those affordances and teachers’ individual pedagogical priorities.” Teachers also need to be able to assess the affordances of technology in relation to their local contexts and students’ needs as Lafford (2009) suggests.

DEFINING AFFORDANCE

Our understanding of affordance today is more complex than Gibson’s original coining of the term to describe action possibilities (Turner, 2005). A key aspect of affordance is that it is situated in the relationship between user and artefact, rather than being about tools that can be developed as independent components and integrated into any learning environment (Doering, Miller, & Veletsianos, 2008; Kirschner, Strijbos, Kreijns, & Beers, 2004). Rather than considering the affordances that technology in general offers for education (as in Conole & Dyke, 2004; Naidu, 2007), this research focused specifically on the affordances that teachers perceive in individual tools.

For the purposes of this study then, affordance is defined as the potential that teachers perceive in a particular technology tool that will support learning and teaching activities in their educational contexts. While the attributes of the tool contribute to such affordances, it is crucial to remember that supporting language learning is less about the technology and more about the uses to which the technology is put (Egbert et al., 2011; Sharp, 2011). Hence, the characteristics of the teacher are also significant in contributing to the affordances they perceive.

Based on this definition, the process of teacher learning about affordance is more than just their learning to perceive the attributes of a new tool. Instead, it is a holistic picture of seeing possibilities and exploring these in action and over time (Orlando, 2009), with affordances being emergent properties (Stoffregen, 2003) of both the teacher and her context. An integral part of teachers’ techno-pedagogical competence is their “capacity to adjust the potential of any tool to their pedagogical objectives and to the relation they wish to establish with their students” (Egbert et al., 2011, p. 191). While this might be an aspect that needs to be addressed in pre-service training (Kessler, 2010), it remains a problem for in-service teachers as well. Blake (2008, p. 99) comments that even seasoned language instructors may not find the use of computer-mediated communication (CMC) in language learning “intuitively obvious.” Comas-Quinn’s (2011) study of teachers who were learning to teach online suggests that teachers may have a poor understanding of the affordances of new tools to facilitate learning. They learned *how* to use the tools but not *why* they were using them. Similarly, the experiences of teachers in Sharp’s (2011) study suggested that tools are frequently mismatched with teachers’ pedagogical purposes. Identifying the affordances that teachers might see and the way that such perceptions develop over time is therefore an important part of extending our knowledge about new tools and how they can be usefully integrated into language learning classrooms.

The research questions on which the case study described in this article is based are:

1. What affordances do experienced in-service teachers perceive in their initial use of blogs and wikis?
2. To what extent does perception of affordance develop over time?

Slaouti and Motteram (2006) acknowledge the importance of developing the personal knowledge base that technology using teachers bring to their learning. Tapping into the practical knowledge of “the experienced, expert technology-using teacher” can provide insights into the kind of change that technology might allow (Meskill, Mossop, DiAngelo, & Pasquale, 2002, p. 47). This article presents such in-depth understanding from two experienced teachers, and describes how their knowledge base developed over time in relation to affordance.

METHODOLOGY

Knowledge develops through cognitive processes of learning, as well as through sociocultural interactions in local contexts. Johnson (2006, p. 4) describes such knowledge as emerging “out of a dialogic and transformative process of reconsidering and reorganizing lived experiences through the theoretical constructs and discourses that are publicly recognized and valued within the field.” The hermeneutic paradigm is appropriate, therefore, for studying teacher learning (Freeman, 1996), since it allows teachers to give voice to their own perspective on lived realities and how they make sense of their learning and teaching environments (Merriam, 1998; Miles & Huberman, 1994).

An interpretive, qualitative approach was chosen to give insights into language teachers’ subjective view of their experiences of learning to use new tools (Denzin & Lincoln, 2008; Richards, 2003). The 16 participants taught a range of languages at undergraduate level in five universities in Australia and New Zealand. Teacher narratives were co-constructed with the researcher through the active process of interviewing (Holstein & Gubrium, 2004). Semi-structured interviews allow teachers’ voices to be heard (Flick, 2006) and are particularly appropriate for exploring teacher cognition (Adamson, 2004). Participants in the study were asked to reflect on their learning in relation to their use of a new CMC technology and, over time, to identify skills and understandings that had developed through their practice.

This article focuses on two teachers, a purposive sample from the wider group, in order to present an in-depth look at their narratives about their lived realities and how they make sense of their learning and teaching environments (Merriam, 1998; Miles & Huberman, 1994). These two teachers are described in this article for several reasons. Firstly, the fact that they worked in the same department and taught several courses together meant a more valid comparison of their perceived affordances of the same tools. As well, there was opportunity to interview them three times over the fourteen-month data collection period of study, whereas most other participants were only interviewed twice over the same time. The extra interview and their experience of moving from using blogs to using wikis over this time makes for an interesting case.

Lucy and Elena (pseudonyms) were among the most experienced users of technology in the participant group, having both used digital technologies in the language classroom for fifteen years. Since the focus of this study was on individual teacher learning, the two Italian teachers were not interviewed together, but individually. Rather than conduct interviews in their offices, they suggested the use of a “neutral” space (an empty office), where there were fewer interruptions, and which they felt was less distracting. Each interview lasted between 1–1 ½ hours.

As part of the interview process, each teacher reflected on her use of new tools (blogs and wikis for both of them), demonstrated different aspects of their online courses, gave respondent feedback on results from earlier sessions and also gave the researcher a semester’s access to one of the wikis used in their team-teaching which was used for illustration. The first interviews were recorded with screencasting software (Camtasia) as an attempt to capture explanations related to specific knowledge acquired in relation to the teaching of the course online. However, as this was less efficient than expected and added little value to the data collected, the screencast recordings were discontinued and audio recordings used. Transcriptions were done by the researcher, which allowed for close checking of transcripts for accuracy of language (Creswell, 2009) and attention to tone of voice or length of pauses (Silverman, 2001).

Inductive analysis, based on a grounded theory process (Corbin & Strauss, 2008), was ongoing with the data collection. Transcripts of initial interviews were considered line by line (using NVivo software) and the codes created through this process were reviewed and sorted into broader themes. Through the use of graphic representation (cluster and cloud maps) these themes and categories developed from them informed frameworks created to present data (Flick, 2006; Merriam, 1998). Two different tables that (a) defined the kinds of knowledge participants acquired and (b) framed their affordances were used to organise and present findings, and respondent feedback was sought on these.

Participants' Background

Lucy and Elena had used technology to support their teaching of Italian for more than 15 years. Two other teachers made up their close-knit team of four, teaching Italian as a foreign language to adult learners in an Australian university, using a broad communicative approach to this end and introducing students to Italian culture. Team-teaching was a deliberate choice for the teachers in this team, and Lucy and Elena shared several of the courses described in the next section, although both also taught individually. As will be evident in the description that follows, Lucy, in particular, enjoyed finding creative tasks for students to do using new tools.

Over this time, the two had worked together on a variety of technology projects involving other staff members in different team combinations, according to their individual availability and interests. They initiated the use of different tools in the classroom, with minimal training or support from the institution. Lucy's intention with using new tools was to support the development of students' language competency, as well as giving them the chance to learn more about Italian culture through authentic materials. Elena's beliefs about language learning were very learner-centred, and focused on affective areas such as developing motivation, confidence and encouraging strategy use. Over the time in which Lucy and Elena were interviewed they continued to use blogs and began to work with wikis. Their assumption that the affordances of the two CMC tools were somewhat similar led to problems in their implementation of a new technology.

The following description of their recent experiences of learning to use a wiki over a period of around eighteen months begins with their initial use of a class blog.

Lucy and Elena's learning experiences with blogs and wikis

Lucy first learned about blogs when a colleague returned from an overseas conference and observed that blogs seemed to be very popular for language teaching. Lucy went online to find out what a blog was, and was impressed at the way in which blogs allowed her to keep up to date with modern Italy. She visited a number of class blogs and felt that in language learning, blogs might motivate students and give them 'a vision of Italy today'. She and Elena decided to use a class blog in a new course that they were developing together. Elena set up 'My Dog's Blog' as an experiment and practiced using it with her family members.

Their use of the class blog was simply as a place to interact with students around course content. As Lucy commented, initially their intention with using the blog was 'to increase the input of language and increase communication among members of the class...so these were our two aims, but then once we started, other things came up'. From seeing general affordances of the blog at first, they began to see more specific affordances that related to their specific classroom contexts. One such affordance was that the class blog would give them somewhere to upload presentation files created by students so that their classmates could view them both before and after the actual presentations occurred. They also liked the use of the blog roll¹ for giving students links and online resources. Conversations that took place on the blog gathered momentum and depth during the course and the teachers identified that the communication that happened over the semester had contributed to making the course cohesive, and had also given shyer students a voice in the L2.

In the next semester, Lucy decided to use the blog for an existing course focused on autobiographical writing. The use of a class blog in this course allowed students to publish their writing for each other, and to get peer feedback on it, which helped create supportive relationships between class members. As well, Lucy felt that being able to read each others' comments and postings gave the students exposure to more language and phrases, which increased their knowledge and their confidence in terms of what they were able to write themselves. Not only did she see value in the blog for the learning opportunities it afforded students, Lucy felt that the blog was stimulating for her professionally:

Because you see, with the autobiography, I had the experience of teaching the course without the blog and teaching the autobiography without the blog, and for me [the course *with* the blog] was much more interesting.

Encouraged by the success of the blog, the Italian team applied for and won an internal grant for developing an online site to enhance community in their first year course across three campuses. Originally, they intended to use a blog for this purpose, but an institutional learning technologies advisor suggested that a wiki might be more appropriate. Since the grant was for the following year, they decided to experiment in the meantime with several wikis in other courses they were teaching.

Elena pointed out that the wiki had much the same "pedagogical potential" as the blog, while Lucy suggested that they could be "guided from the experience with the blog;" so both teachers did less reading initially in relation to wiki use, than they had before starting their class blog:

Because we didn't find a lot on wiki in language teaching, to be honest, but we found lots of articles on the wiki in other aspects and teaching other subjects, and so we were starting to think, you know the limits, the benefits and thinking how they could apply to our language teaching context (Lucy).

They identified that blogs and wikis were very similar tools, and that their experience with the blog would place them in good standing when it came to using the new tool.

To experiment with the new tool, they firstly created a trial wiki, where students interacted with an ex-student living in Italy asking questions about her experience. As well as learning how the wiki operated, Lucy was able to elicit feedback from the students both on the technical aspects of using it and the potential that students saw in the tool. Students suggested the possibility of social interaction on the wiki, which added an extra dimension to the affordances from the teachers' blog experiences, where the interaction had been very focused on course content. Lucy experimented with the wiki in another existing course centered on the news, where students created their own news pages. Finally, they used a wiki for the course where their initial use of the blog had been so successful. In Lucy's absence for a few weeks, Elena found she had to learn very quickly about some of the technical details related to managing the wiki.

The results of their early wiki use were less than satisfactory. Essentially, Lucy and Elena expected the wiki to offer the same features they had enjoyed in the blog. Elena missed the affordance of the blog for currency, with daily additions to the top of the blog. "That aspect of the wiki, not having the daily update, or possibility to post the updates, I think that was really lacking" (Elena). They lamented the wiki's lack of a blog roll that allowed them to give students vetted Websites to visit. However, they found that there were new possibilities for students. "With the wiki, and this is a nice thing, students can open any page when they want to. They were not able to do (this) with a blog, everything had to come by us" (Lucy). Although the teachers appreciated this potential, students gave feedback that the wiki was hard to navigate and Lucy felt responsible for keeping students engaged with multiple pages. They missed the chronological structure of the blog. The most recent writing on the wiki, whether by themselves or by the

students, was much less evident than it had been in the blog and students often didn't read new material.

However, they persevered over the course of several semesters with wiki use, and gradually began to appreciate the affordances that were specific to the wiki. Eventually, Elena felt that "the wiki was definitely far superior to the blog", although Lucy was less certain; "One thing I'm not really sure about is this wiki. There are still things, I think, probably we will have to think a lot how to improve it for next year." Their understanding of the specific affordances of the wiki for individual and collaborative work developed over time, although they were still working out how to actualize these affordances in the best possible ways.

Lucy's chart of affordances of the wiki in [Table 1](#) demonstrates her initial perceptions of general affordances, which, over 14 months moved from being quite general to being much more specific in relation to what she wanted to do with particular courses and even cohorts of students' based on their needs. A good example of this was when she wondered how she could better support her students' reading in a particular course. A survey done with the class demonstrated that their need was for cultural contexts for the texts they were reading. Using a wiki, she was able to encourage students to explore and share cultural knowledge they discovered online, as well as to give her own input on areas that were not covered by students. By the third interview, as [Table 1](#) clearly demonstrates, the affordances that Lucy continued to identify in the wiki were largely related to how the wiki supported her as teacher and her students as language learners. Appreciating the affordances of a tool to support teaching and learning develops over time and becomes more related to specific contexts and students.

While their intentions in using the blog had been to create more interaction and opportunities around language input, the wiki, although another Web 2.0 tool, had different technical attributes. Affordances that Lucy and Elena identified in the wiki were that students were able to add their own content and that student reflection was encouraged through specific tasks that the wiki made possible. Almost incidentally, they discovered the affordance of the wiki for students to edit their own work. A student had posted an assignment early on the wiki and the teachers had given her brief feedback, as a way of acknowledging that she was working well. The student then edited her assignment in response to their comments, alerting them to an important affordance of the wiki for editing their own work over time. Similarly, when the teachers added photos to the wiki, they had not intended for the students to add photos also, but when this happened, they were quick to realize the potential this had for enriching students' own texts posted on the wiki.

An affordance that Lucy was beginning to realize was central to wiki use was the potential it allowed for collaboration. She identified that this was an affordance that had yet to be fully exploited:

And with the wiki, there is this collaboration which is a feature of a wiki, I think I understand, which we haven't used, the students haven't used much so far, because we don't do assessments which are collaborative, so each one has got their **own** assessment. So maybe we might think among the team of how to experiment.

Once again, students had heightened her awareness of this affordance by initiating collaborative work online. In Lucy's course around the news, two students had opened a page together to write collaboratively about recent news rather than writing individually. This perplexed Lucy in terms of making decisions about how to assess collaborative work. The technical affordances of the wiki, combined with her students' online experimentation, prompted her to reconsider aspects of her pedagogy, namely, her approaches to assessment and how she could assess students' collaborative writing, and she determined to make the most of this affordance in the future.

Table 1 Learning Affordances Perceived by Lucy in Wiki

Interview			
1	Generalisable	Technology tool (wiki)	Can add content to Web page; Can see who has made changes on history page; Can see who is working on the wiki at the same time; Wikis allow for collaboration
		Learning	Writing Can discuss with other Ss in L2 (practice using language); Ss can open their own pages from the central wiki (ownership of writing space)
	Specific to this teacher, this context	Teacher	Ss could help each other with language focus (e.g., grammar questions)
		Learners	Offers an internal community (part of Blackboard), compares favourably to Facebook which she describes as too open (e.g., can discuss the weekend) Allows opportunity for students to reflect on their work over time. Collaboration, but hasn't used it yet as assessments at uni are all individual. Two Ss have used this affordance themselves Easy to interact with compared to their blog experience
2	Generalisable	Technology tool (wiki)	Able to add photos
		Learning	Ss can open as many pages as they like; Ss can edit their pages; Ss can delete their comments; Allows class discussion to continue out of class
	Specific to this teacher, this context	Teacher	Wiki allowed T to keep up to date with what was happening when she was on leave T was able to support Ss with problem deleting and restoring pages Allows T to be teacher and facilitator but also just to be participant – exploit different voices Ts are able to share their own personal experience, which encourages Ss to unveil themselves and contributes to making class feel closer Local support: The negative aspect of being closed as a community was compensated for by having institutional support for wiki

Table 1 (continues)

2	Specific to this teacher, this context	Learners	<p>Wiki allows Ss to edit their own work continuously (autobiography). Also lets them delete their own comments (blog didn't allow this)</p> <p>As a discussion space, wikis seem to allow Ss the opportunity to disagree with the teacher in ways that may not happen in f2f class; Ss wanted to add their pictures to page, since Ts were able to – L saw this as collaborative</p> <p>Wiki has been quite reliable/stable from a technology point of view (Didn't know about translation feature)</p>
3	Generalisable	Technology tool (wiki)	
		Learning	Wikis give useful perspective on process – can view changes that take place
	Specific to this teacher, this context	Teacher	<p>Ts can use the wiki to keep track of their work together (e.g., outcomes of meetings, page for literature, makes process visible)</p> <p>Teacher-controlled central wiki allowed Ts to communicate with Ss (e.g., events)</p> <p>Was able to extend Ss' understanding and knowledge of cultural elements in relation to texts covered in class – “giving cultural seeds”</p> <p>Was able to use wiki to encourage Ss' more in-depth reading</p> <p>Able to link to existing metaphor (of Vespa) in 1st year course – introduced themselves through Vespa photo</p> <p>Can use history to check on who has deleted/contributed to collaborative tasks</p> <p>Comments can be cut and pasted to allow for easier assessment (Ss create portfolio based on wiki)</p>
		Learners	<p>Cultural/reading</p> <p>Ss prompted to explore cultural connections (links, questions asked about text) and add comments on specific wiki page</p> <p>Social/community</p> <p>Able to communicate with Ss on other 3 campuses – photo riddle worked well as an icebreaker to allow all Ss to participate and consider what other people were saying (had to acknowledge each other)</p> <p>Able to do collaborative tasks together in groups of ten (mixed campus groups)</p> <p>Able to share notices on dedicated page for Ss (but they didn't use)</p>

Notes. T = teacher, Ss = students

At the beginning of a new academic year, the teachers worked with several other colleagues to use their grant to create a wiki for community that would connect students across three campuses in the one city, and encourage them to create content together. Using a single wiki with one hundred first-year students was stretching, both technically and pedagogically, after the more intimate courses they were used to with higher-level students. However, it was the pedagogical challenges that they continued to reflect on, once the technical issues were resolved. While their first online activity to establish communication in the first-year community of students (a quiz where students had to identify what an item was based on a close-up picture) was very successful, the second activity (where groups created collaborative pages of content about points of interest in an Italian city) posed a few problems in relation to the best ways to give feedback. Lucy was also still aware of being uncertain of how to make appropriate assessments of collaborative group work. As well, the teachers' workloads increased significantly with the new wiki, and for the first semester the grant was used to fund extra hours for teachers' designing the course and marking.

DISCUSSION

Looking back over their two years of blog and wiki use it is clear that Lucy and Elena's knowledge and understanding of the affordances of these tools had developed both in terms of breadth and depth. Lucy's chart of the affordances of a wiki in Table 1 demonstrates how her understanding and use of the wiki developed over time. The kinds of affordances that the two teachers identified had related largely to what they were able to do in their teaching and also to the ways in which they supported their students' learning. These affordances relate to learning processes in the classroom, and so I have identified them as *learning affordances*. While some are broadly generalizable to other classes and teachers, many of the learning affordances were very specific to this particular classroom and the intentions of the teachers, as exemplified in the affordance chart in Table 1.

Lucy and Elena's story exemplifies three useful points about teachers' developing understandings of affordance. Perceptions of learning affordance develop over time and through experimenting with using new tools in the classroom. As well, perceptions will differ between individual teachers in relation to the learning actions that they see as important in their classrooms. Thirdly, teachers may also perceive affordances in the use of technology for their personal learning and professional development. This section discusses each of these points in turn and then makes suggestions as to broader implications for supporting teachers' situated learning.

Perceptions of Affordance Develop Over Time and Through Use

Clearly, over the eighteen months described in this study, the teachers' understandings about the possibilities for using blogs and wikis in the classroom developed considerably. From not even knowing what a blog was two years earlier, Elena and Lucy had become proficient users of blogs and wikis in their classrooms. Much of this learning occurred through their actual classroom practice. They had very little formal input in relation to either blogs or wikis from their institution and, in fact, eventually ran several workshops for their colleagues on using wikis. They had looked at existing class blogs and, over time, continued to read about research and good practice in relation to both blogs and wikis, which contributed to ideas for how to use the tools. However, their situated learning largely consisted of using the tools in practice and experimenting to find out what worked in their particular contexts. Similar to the teachers in Kessler's findings (2006, 2007), their learning occurred informally rather than through formal means. Their learning experiences also bear witness to the value of independent experimentation and reflection over time that Paltridge (2000) suggests as important for language teacher education.

Lucy experimented with using the tools in different courses, both existing and new. She enjoyed finding creative ways to structure the tool to fit different aspects of a particular course. She would mull over pedagogical issues and identify how the technology could support students' learning, for example, in

relation to reflection and giving feedback. Students' responses to technology use contributed to understanding the affordances of the tools, and Lucy was adept at noticing how students actually used the tools, and seeing affordances in their behaviour, most noticeably with identifying the affordance of a wiki for editing. Although Lucy had read about wikis being used for collaboration, she admitted to being uncertain about how to assess collaborative writing, and hence seemed to overlook the collaborative possibilities of a wiki in their initial use. It was only when her students themselves began to take advantage of this affordance that she realized she would have to consider collaborative assessments.

One of the problems that Lucy and Elena had with their first use of the wiki was that they did not consider that two Web 2.0 tools might have somewhat different affordances. Moving from successful blog use to wiki use, the teachers identified that the two tools were much the same. While they had read extensively about blogs and their use for language learning before they began to use a class blog in teaching, they did less reading about the wiki at first. This led to some disappointment with their initial experiments with the wiki in the classroom. They missed the affordances of the blog, such as its chronological structure with new material being instant viewable. They felt less involved in discussion and consequently less part of the classroom interaction, whereas the class blog had given them more control.

However, once they began to use the wiki more and started to recognize the affordances that it offered students for their learning, they became more positive about the wiki. At the same time, they did further reading around wiki use prior to using wikis with a larger cohort of students, which gave ideas for specific activities.

For Lucy and Elena, an appreciation of the different learning affordances of the tools developed over time. In the second and third interviews, as Lucy's affordance chart in Table 1 demonstrates, their perceptions of learning affordance became more nuanced in relation to their specific contexts, to their curriculum needs and even to actual cohorts of students.

Perceptions of Affordance are Specific to Individual Teachers and Their Pedagogical Experiences and Intentions

The kinds of affordances that teachers see relate very much to their individual contexts. When first faced with a new tool, teachers seem likely to identify affordances that are general. The first affordances for learning that Lucy noticed, when she went online to find out what blogs were, related to communication and being able to keep up to date with Italian society and culture. However, as their experience continued over time, they began to identify affordances that were very specific to their contexts and what they wanted to do with their students. Similarly, with their use of wikis, they initially appreciated the affordance of students having an individual space to write and the affordances in terms of interaction with class peers and with the teacher. However, as their use of the wikis continued, they perceived affordances that related to their particular courses, to their university and even to specific cohorts. For instance, Lucy used a wiki to engage students in tasks around their individual needs, which was to develop their understanding of the cultural background of reading texts.

Their earlier experience with the blog was integral to the way in which Lucy and Elena saw affordances in the wiki. Their use of a blog was limited to operating a single class blog, similar to what Lucy had noticed online, rather than students creating their own blogs. As well, the blog software they used meant that they had to approve students' comments before they were posted. While this allowed them to be very present in the lively class discussion, an aspect they really enjoyed, the affordance of the wiki that they therefore appreciated was that students were able to post their own material without going 'through' the teachers. Elena summed it up by saying "So I think the blog was probably a bit more of a blend of our and their work, whereas here [the wiki] was definitely more their own... we were quite absent in terms of our input." This difference in perception of the affordances of the two tools has less to do with technical possibilities of the two tools and relates to the teachers' specific experiences. Essentially, blogs and wikis both offer opportunity for students to post their own work and to interact online. Although Lucy and

Elena identified general affordances such as interaction or communication, their perceptions were limited by their personal experience. The way they had used blogs influenced their perceptions of what wikis could do. Teachers will perceive affordances of a new tool in ways that are very specific to the kind of software they use, to their earlier experiences with similar tools and to the ways in which they initially use the tools.

Teachers also differ in the actual affordances they perceive. Despite their strong team dynamic based on reflective discussion, and a shared appreciation of the affordance of Web 2.0 tools for establishing classroom community, the two Italian teachers also perceived affordances of blogs and wikis in slightly different ways. While Lucy's focus was on student language learning and aspects related to collaboration and giving feedback, Elena seemed to be more interested in social networking itself as a process.

Lucy explored the possibilities of the wiki as a way of supporting the pedagogical processes she wanted to develop within the classroom, whether this was for reflective practice or developing cultural knowledge around reading texts. Her perceptions of what a tool could do were influenced by her desire to develop students' language competence. She very deliberately explored ways of integrating the wiki into different courses with a focus on finding the right pedagogical fit for the tool. The technical affordances of the wiki had also prompted her to reconsider aspects of her pedagogy, namely, her approaches to assessment and how she could assess students' collaborative writing and this led to incorporating specific collaborative tasks in their grant project with wikis.

Elena, on the other hand, was focused on the communication that occurred, which supported her desire to increase student confidence and their motivation for language learning. She described the blog use as being like power lines, allowing communication to happen in between the weekly class (the power pylons), enhancing students' learning experiences. A spin-off of her blog use was that she also began to use email in other classes in order to develop the affordance of communication between herself and her students. As well, she saw value in having a single space where students could contribute and was considering the use of other social networking tools in the future. She felt that a tool such as Facebook might have better affordances for the kind of interaction that she wanted to promote in a particular course.

Both teachers perceived the value of blogs and wikis differently, influenced by their beliefs about how best to support learning processes. Teachers' perceptions of affordance will relate to their approaches to learning and teaching, and the processes that they value in the language classroom.

New Tools Have Affordances for Teacher Learning

An important aspect of their use of new CMC tools was the ongoing learning it afforded for Lucy and Elena as teachers. Their use of blogs and wikis had given them fresh perspectives on their teaching. Developing new teaching skills in online interaction had led to new understandings of their role as teachers online.

Lucy had learned to wait before contributing to student discussion, as it allowed her time to decide on appropriate linguistic responses to her students. However, at times she wanted to respond on the wiki as a participant rather than as a teacher. "Sometimes I want to give my opinion too, I'm a member of the community too. I want to talk." Through reflecting on the nature of "online voice," she was learning that there were times when being a participant in online discussion and having a teacher voice were aspects of how she supported a growing sense of community. She had also learned the value of "provoking disagreement" in online conversations in order to stimulate students' critical thinking.

Elena, too, had learned about her role as an online teacher. She had felt very involved in class blog discussions, with a clear sense that her role was to stimulate discussion, follow it closely and provide input as well as linguistic feedback. As teacher, she felt that "exposing" herself online had been important in creating a sense of trust within the environment. However, moving to the wiki challenged her sense of what her role was. She felt less involved and more of a reader rather than a contributor. By the third

interview, with more wiki experience, she had decided that tutor presence was integral to making online discussion work, but was experimenting with the right level of input to maintain student interest, and also determining what was realistic for her personally.

Elena and Lucy had not only learned about their teaching, but had acquired better understandings of how to support their students' learning. The blog had been instrumental in allowing Elena to have a different relationship with her students, enabling her to see their perspectives on various topics and allowing her to support them as individuals. Her initial lack of confidence with being in charge of the wiki in Lucy's absence had given Elena the chance to identify with the negative experiences some students faced with new technology. Lucy had worked hard to find ways to support students' in learning to use the new technology, and spent considerable time devising and staging appropriate tasks to help students learn. She had discovered that relating to her students as people actually sustained her own enthusiasm for teaching. For both Lucy and Elena, the sharing of themselves as teachers that had been so central to their first blog use continued through the different wikis as they learned new ways to engage and support their students.

Working collaboratively as a team was integral to their own learning, with many of their sentences in the interviews framed as "We think..." or "We are considering..." Reflecting together clearly contributed to their development. Lucy, for instance, described how much she had learned from the different teaching styles of the other team members and how, as a result, she had adapted her own way of teaching over time. She appreciated the strengths that each teacher brought to the team and the ways that they could work together in a "complementary way." The collaborative nature of the team helped broaden their perception of affordances.

Lucy and Elena's strong focus on pedagogy meant that the value of a new technology tool was always seen in relation to how it afforded their students' language learning. Elena traced this focus on affordance, or what a tool allowed them to do with their students, back to their first use of technology to support language learning.

I think it's interesting that with the use of that first technology [fifteen years earlier], really some of the themes we've been exploring with new technologies are still the same... the things of how students use it collaboratively...the independent work, the language generated while working with the technology, the type of strategies they use... the same themes have remained, are still there, we're still exploring them but just with new technologies.

The pedagogical issues and what they wanted their students to achieve through the technology were still primary concerns for their classroom practice just as when they initially started using technology, fifteen years earlier.

To sum up, Lucy and Elena had many years of teaching experience, and of working with technology in their classrooms. Their alacrity in availing themselves of new tools, their experimentation with the best ways to use the tools and their innovative use of technology to support their pedagogical intentions in the classroom all demonstrate the techno-pedagogical competences they have acquired over time (Kessler, 2010). The fact that they had transfer problems in terms of perceiving affordance in new tools suggests that teachers with less experience and competence, both in the classroom and also with technology in general, might need even more time to become familiar with new tools. The suggestions below highlight the need for teacher learning that is focused on participatory practices, both formal and informal, with reference to research and other teachers' experiences.

Suggestions for Supporting Teacher Learning About New Tools

Support for learning to use new tools can occur in teacher training as well as in situated contexts. Ideally, in pre-service courses, teachers have a chance to use a wide range of tools personally to gain awareness of existing tools and the confidence to try out new ones (Godwin-Jones, 2003; Robb, 2006). Through this

process, new teachers can be trained to look for learning affordances, which may mean quicker perceptions of affordances of future technologies. Once teachers are working in classrooms, their previous use of technologies for teaching may impact the affordances they see in new tools, just as it did for Lucy and Elena, whose assumption that the affordances of wikis would be similar to those of blogs impacted their adoption and initial classroom use of wikis. Support in the form of heuristics such as [Table 2](#) can encourage teachers to explore the affordances of new tools for their immediate contexts. An appreciation of how other teachers perceive language learning affordances, both in ways that are generalizable and are specific to individual contexts, could be enhanced through a combination of learning activities such as readings about use, observation of and discussion with experienced users of new tools. Building up a database of teachers' perceptions of affordance, based on research as well as local knowledge, can support a better understanding of the kinds of ways in which tools can be used appropriately.

Table 2. *Exploring Affordances of a New Tool*

Questions to ask when considering a new technology tool for your classroom
What are the learning affordances of this tool generally? What are the action possibilities of this tool for students' learning?
How is it similar or dissimilar to other technology tools that I have used?
What are the action possibilities of this tool for me, in my specific context? How could I use it to support my teaching, my students' learning and my own learning?

Perceptions of specific learning affordances develop over time and through use. Practices such as reading, experimentation, reflection and discussions with colleagues helped Lucy and Elena develop their perceptions of affordances of new tools. It takes time to experiment with the same tool in different courses and with different cohorts in order to understand how learning affordances are best actualized in individual classroom contexts. Developing understandings of learning affordances can be supported in programmes and departments by building in time for reflection on pedagogical purposes in relation to new tools and by encouraging teachers to share the affordances they perceive. Also valuable is the opportunity to work in teams on programme development and research, as Lucy and Elena did, and to have opportunities to articulate developing perceptions of affordance with teaching colleagues, whether in local or global teaching communities (Hanson-Smith, 2006; Sharp, 2011).

LIMITATIONS AND FURTHER RESEARCH

This article describes qualitative research that focused on two individual teachers and their use of new communicative tools. The findings, therefore, have limitations in terms of being applicable to language teachers in different contexts. Less experienced teachers may take longer to perceive affordances in new technologies and be less able to implement affordances appropriately in the classroom without external guidance. Further research into the kinds of affordance that language teachers perceive in different kinds of tools will identify successful factors that contribute to teachers' learning about affordance and add to our ongoing understandings of situated language teacher learning, as Egbert et al. (2011) suggest. There is also a need for research that identifies the degrees of alignment between the kinds of affordance that students perceive and those their teachers perceive in new technologies.

In-service teachers will continue to need educating in relation to new tools. Hanson-Smith (2006, p. 301) claims that "one of the most significant problems facing computer-using teachers is that no education curriculum can prepare them for the swift and continuing changes that take place in the world of technology." A focus on the learning affordances of new tools prioritizes pedagogy and gives teachers a

springboard to implementing technology in ways that will support teaching and learning processes in the classroom.

NOTES

1. A blog roll is a list of links recommended by the blog author, usually listed in a sidebar

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