

JOSEPH RAMANAIR

8. TURNING CHALLENGES INTO OPPORTUNITIES

Investigating Technology Integration in Tertiary Level English Language Programmes through the Lens of Activity Theory

INTRODUCTION

There is potential in incorporating technology for language learning. Studies investigating the potential that technology offers to English language pedagogy indicated that it supported the learning of vocabulary (Cross, 2011; Prince, 2012; Sydorenko, 2010), stimulated interaction to encourage language output (Acar & Kobayashi, 2011; Franciosi, 2011; Sagae, Kumar, & Johnson, 2009), encouraged collaboration in language learning to share, adapt, and create meaning (Jalkanen & Vaarala, 2013), and enhanced the learning of grammar for writing (Acar, Geluso, & Shiki, 2011).

However, the potential of technology has not always been realised in some educational environments such as in the English language learning environments, as is evident in the educational technology literature (Baker, Bernard, & Dumez-Féroc, 2012; Voogt, Erstad, Dede, & Mishra, 2013). There are contexts where its use has often been described as uneven or limited, with the tendency of technology to be used on the periphery or on an ‘ad hoc’ basis (Blake, 2013; Kreijns, Vermeulen, Kirschner, van Buuren, & van Acker, 2013). This reality challenges the concept of “normalisation” which was first introduced by Bax (2000) to investigate the integration of technology into tertiary-level English language teaching. As defined by Bax (2003), normalisation involves “the stage when technology becomes invisible, embedded in everyday practice and hence ‘normalised’” (p. 23). The state of normalisation is achieved when teachers and students use technology as a learning resource on a daily basis as an integral part of every lesson (Bax, 2003).

Thus, two aspects need to be addressed when investigating technology integration. The first aspect concerns the context in which technology is used which is the classroom learning environment while the second involves the teacher who is using the technology within this context. As both aspects are interrelated, examining this relationship is rather complex. Activity Theory as a framework enables such complex interactions to be described and analysed to provide insights into not only how technology integration occurs through the use of selected tools in classroom learning activities and the challenges involved, but also reveals how such use affects those who are part of this learning environment, and the outcome of the activity.

J. RAMANAIR

Examining technology integration through the lens of Activity Theory, thus informs practice not only within an immediate language learning programme but could also apply more broadly to other similar contexts.

As such, this chapter will discuss how Activity Theory is used as a lens to investigate technology integration based on one empirical study which was conducted as part of a doctoral level research. The study was carried out in the context of a tertiary level English language programme in New Zealand to examine how technology involving one Learning Management System (LMS) known as Moodle was integrated, identify what challenges were experienced, and recommend how these challenges could be addressed within this context.

THE CLASSROOM LANGUAGE LEARNING ENVIRONMENT

English Language Pedagogy

For classroom learning to be effective, conditions that facilitate language learning need to be created. These conditions which can be created through instructional practices include providing learners with extensive and rich personalised language input, sufficient opportunities to produce output (particularly through interaction), and feedback on the learner's comprehension (Ellis, 2005; Franken & Rau, 2009, Nunn, 2006). Creating such conditions can enable both cognitive and social learning to occur and the use of technology can also enhance these learning conditions. Input could be enhanced through the use of technology through the use of multimedia (Cutrim Schmid, 2008; Kessler, 2013; Sydorenko, 2010), video clips with captions (Li, 2013; Perez, Peters, Clarebout, & Desmet, 2014), and video lectures (Yang & Sun, 2013). Providing learners with sufficient opportunities to produce output (particularly through interaction) could be supported through the use of text based Computer Mediated Communication (CMC) (Meskill & Anthony, 2005; Vinagre & Muñoz, 2011; Ware & O'Dowd, 2008). Feedback could be enhanced through the use of CMC as well which involves the use of email and online chats (Guichon, Bétrancourt, & Prié, 2012; Lee, 2006, 2008).

Challenges of Technology Integration

While the use of technology could support to create conditions to facilitate language learning, efforts to incorporate it in the classroom in many educational institutions have not been without their challenges. Various factors have been identified as posing constraints to the use of technology for classroom learning and they have often reflected the same constraints over the years since the inception of technology in classroom learning (Karabulut, 2013; Kopcha, 2012). Some of the constraints concern the limited access to technology (Bacow, Bowen, Guthrie, Lack, & Long, 2012; Johnson et al., 2013), the time required to use technology (Kopcha, 2012;

Laferrière, Hamel, & Searson, 2013), the cost in using technology (Bacow et al., 2012; Liang & Chen, 2012), the limited training for teachers to incorporate technology in the classroom (Johnson et al., 2013; Singh, Schrape, & Kelly, 2012), and the lack of administrative support (Bacow et al., 2012; Karabulut, 2013; Kopcha, 2012). More often many of these constraints are part of the wider sociocultural environment (Bacow et al., 2012; Karabulut, 2013; Laferrière et al., 2013) and are interconnected, related, and emerged from the complexities that occur in this environment (Laferrière et al., 2013).

TEACHERS AND TECHNOLOGY

Teachers play an essential role in the language classroom as they determine the learning needs of the students and how these needs can be approached through instructional activities. With the rapid developments and potential that technology has to offer, teachers are increasingly expected to use it in their classroom teaching (Blake, 2013; Egbert, Huff, McNeil, Preuss, & Sellen, 2009; Gruba & Hinkelman, 2012). However, technology has been largely used to transmit knowledge and information, employed in a disconnected or peripheral way (Bates, 2010; Lai, Khaddage, & Knezek, 2013; Selwyn, 2012), and used because of its novelty factor (Compton, 2009; Toetenel, 2014; Zou, 2013).

Technology is certainly not impartial (Karlström & Lundin, 2013; Steel, 2009) and offers affordances and constraints in the instructional environment. Kaptelinin and Nardi (2012) argue for a need to consider technology affordance from a mediated action perspective as involving a three-way interaction between the person, the mediational means, and the environment. Affordances from the mediated action perspective are considered as “action possibilities offered to the actor by objects in the environment” (Kaptelinin & Nardi, 2012, p. 973). The concept of affordance thus, can be understood as having functional, relational, and cultural aspects (Hutchby, 2001). As such, in considering the teacher factor in investigating technology integration, teachers’ knowledge bases need to be explored.

Technological, Pedagogical, Content Knowledge (TPACK) Framework

The TPACK framework informs the integration of technology in classroom teaching and learning. It emphasises the need for teachers to thoughtfully interweave the three main foundations of knowledge: technology, pedagogy, and content to develop good content and strategies for classroom learning activities (Mishra & Koehler, 2006). This form of knowledge is distinct from the knowledge of teachers who are specialists in their subject area or who are experts in using technology. Developing quality learning experiences involves teachers having “a nuanced understanding of the complex relationships between technology, content, and pedagogy, and using this understanding to develop appropriate, context-specific strategies and

J. RAMANAIR

representations” (Mishra & Koehler, 2006, p. 1029). The TPACK framework is illustrated in Figure 8.1.

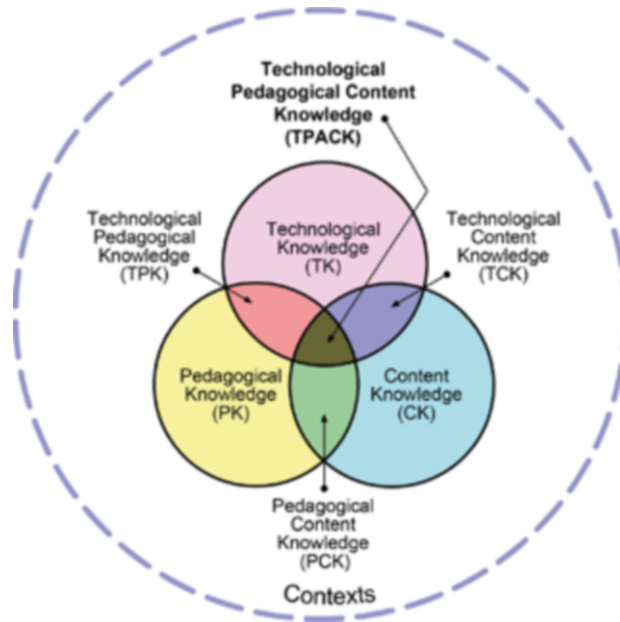


Figure 8.1. Technological Pedagogical Content Knowledge (Reproduced by permission of the publisher, © 2012 by tpack.org)

To explore teachers’ conceptions of technology integration, there is a need to consider how teachers think and develop as they interact with the pedagogical and content knowledge. As knowledge is complex, multifaceted, and situated, teachers’ conceptions need to be investigated in the context of their practice. In addition, there are social and cultural aspects within an educational environment that can interact with teachers’ learning and practices, and can affect their knowledge in integrating technology. As such, there is a need to address how these social and cultural factors interact with teachers’ knowledge and affect their learning when integrating technology in their instructional practices. This need is explored from the perspective of sociocultural theory as applied to teacher learning which is explained next.

Sociocultural Theory as Applied to Teacher Learning

A sociocultural theory of learning views learning as involving social interaction and collaboration. It acknowledges mental processing as situated within the cultural, historical, social, and institutional contexts of a broader community. A sociocultural

perspective of learning is relevant to this inquiry as it provides a basis for exploring “teachers as learners” as they integrate technology in their instructional practices.

Four interrelated principles of sociocultural theory of learning can be derived from prominent researchers in the area (Barab & Duffy, 2000; Jonassen & Land, 2000; Nasir & Hand, 2006; Salomon & Perkins, 1998). The first principle which is a fundamental concept of sociocultural theory is that the “human mind is *mediated*” (Lantolf, 2000, p. 1, emphasis in original). The second principle concerns the role of context in which the learning takes place (Barab & Duffy, 2000; Lave & Wenger, 1991; Wertsch, 1991) while learning as goal-directed is the third principle of a sociocultural theory of learning. Goals are an important part of activities as they provide the impetus that can promote learning and development (Engeström & Miettinen, 1999). Finally, participation in the practices of a particular community enhances the process of learning and development (Barab & Duffy, 2000; Lave & Wenger, 1991; Sfard, 1998). A sociocultural perspective of learning foreshadows the use of Activity Theory as an explanatory framework for this chapter.

ACTIVITY THEORY

Background

The early model of Activity Theory, which focussed on “activity” consisted of the subject, object, tool, and outcome. The concept of mediation, which is the main focus of early Activity Theory, is reflected in Vygotsky’s model of mediated action as shown in [Figure 8.2](#).

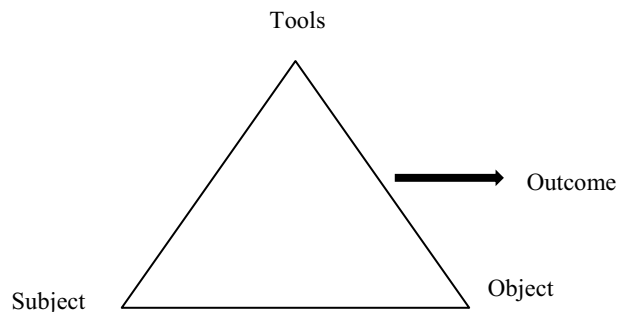


Figure 8.2. Early Activity Theory: Mediated action

Activity concerns a “form of doing directed to an object” (Issroff & Scanlon 2002, p. 78). While the subject concerns an individual or a group, the object involves the product, which the subject acts on during an activity (Keengwe & Kang, 2013). The object thus concerns the motive of the activity. During the activity, the subject typically employs a tool which is simultaneously material such as a computer, a hoe,

or a mobile phone, and/or conceptual such as language or mathematical formula, to realise the object. The outcome refers to the overall purpose of the activity system (Keengwe & Kang, 2013). Much later, Vygotsky's model was extended by Leont'ev to explain key differences between an individual action and collective activity (Engeström, 2001). While an action is concerned with an individual or group accomplishing a goal, an activity involves a community with an object and a motive (Bakhurst, 2009). Leont'ev emphasised the significance of the object, which involves the product or the motive which the subject acts on during an activity, suggesting that activities are differentiated by the objects that are pursued (goals) (Barab, Evans, & Baek, 2004). Leont'ev (1974) further distinguished goals as immediate and overall; and described activity as consisting of activities, actions, and operations as hierarchical.

Activity Theory Expanded

Engeström (1987) further expanded on Leont'ev's extended concepts. This new structure emphasised the role of cultural mediation, the social, cultural, and historical context of activity, and the relationship between the individual and the collective. Activity Theory advanced the idea that a natural focus for the study of human behaviour is activity systems, which can be understood as historically conditioned systems of relationships among individuals and their proximal, culturally-organised environments (Cole & Engeström, 1993).

This expanded description of Activity Theory shifted from an emphasis on individual action and processes "to include a minimal meaningful context which is called an activity" (Issroff & Scanlon, 2002, p. 78). In describing this expanded model, Engeström (1987) conceptualised the activity system as comprising of six interacting components, which are the subject, the tool and signs, object, rules, community, and division of labour. Based on this conceptualisation of activity, the action of the individual becomes embedded as part of a system and meaning is derived from a community of people who share the same object (Engeström, 1987, 2001). A diagram of this expanded description of Activity Theory which is also known as second generation Activity Theory is illustrated in [Figure 8.3](#).

The Methodological Implications – Activity Theory

Drawing on Activity Theory as an interpretive framework has particular methodological implications given the descriptive nature of the framework. These implications concern the value of researching human activity in real-life contexts and of employing a variety of data collection methods to provide multiple perspectives of the learning activity. Activity Theory emphasises that research investigating human activities within a particular setting must be in the context of real-life activities. This focus enables research to investigate how people engage in activities that involve goals, objects, and outcomes, which drive that activity and the social and

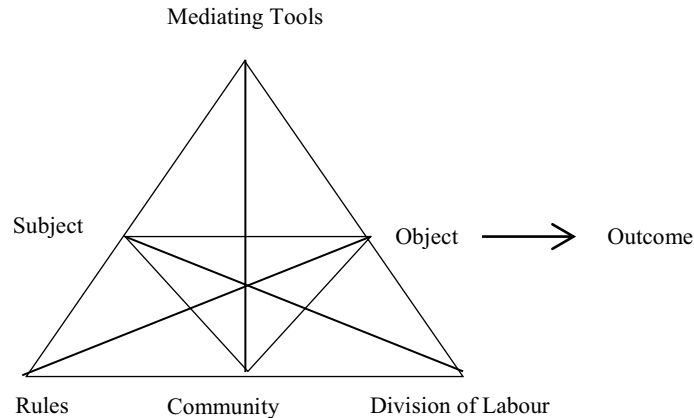


Figure 8.3. Activity Theory: Expanded

cultural relationships among groups of people (Engeström, 2001; Jonassen, 2000; Kaptelinin & Nardi, 2006). As these relationships involve mediation through tool use, research needs to pay close attention to how, when, and where that mediation occurs. In particular, the concept of distributed cognition needs to be considered, as knowledge and understanding are not exclusive but are collectively shared among the community through the use of cultural artefacts. Activity Theory provides a robust interpretive framework for describing the culture of a setting particularly in relation to the cultural artefacts such as tools, the role of the community, and social rules.

A DESCRIPTION OF THE STUDY

The Context

This study which used Activity Theory as a lens to investigate technology integration in one tertiary level English language programme, was aimed at examining how Moodle was used in an English language learning classroom, what challenges were experienced, and how these challenges could be addressed in the English language programme. This study which involved the use of qualitative research with an ethnographic approach was conducted on one 12-week certificate level English language programme offered to international students at the tertiary institution. It involved the voluntary participation of three teachers (T1, T2, T3), the programme administrator, and technology support personnel as key informants, and the students.

Data Collection

Data were collected in two phases, using multiple methods consisting of semi-structured interviews, work-together sessions, and classroom observations. In

J. RAMANAIR

Phase One, data were collected from all participants through semi-structured interviews while in Phase Two, data were obtained only from the teachers who participated in Phase One as a follow-up. The teachers and key informants were interviewed individually while the students were interviewed as a focus group. Teacher interviews occurred thrice in Phase One and once in Phase Two while interviews involving others were conducted once. Data were also collected through work-together sessions which involved the researcher working alongside individual teachers at their respective desks to provide verbal guidance on how to create forums and links in the Moodle learning environment as requested. Non-participatory classroom observations were also conducted using a time-based open-ended observation sheet.

Data Analysis

The main data obtained in this study were from the audio-recorded semi-structured interviews involving teachers, students, and key informants. The data from individual teacher interviews at the various stages were also analysed together with the data from the key informant interviews and student focus groups, and notes from classroom observations and work-together sessions. Data from these interviews and the notes complemented the teacher interview data in terms of clarifying and supporting the information each teacher provided and vice versa. All interview transcripts were analysed using a constant comparison approach (Lincoln & Guba, 1985) and a process of inductive reasoning (Goetz & LeCompte, 1984). The overall relationships, patterns, and themes from the categories that were generated were further reconceptualised into new constructs based on the Activity Theory framework.

FINDINGS

The Object of the Activity

The object in this case study concerned preparing the students to speak in the classroom to develop their speaking skills. Moodle was used as a platform to provide the students with opportunities to rehearse ideas to enable them to speak in the classroom.

Technology to Support Classroom Speaking

For the three teacher participants, technology centred on the computer. They considered the computer as having the potential to prepare their students to speak in the classroom especially as the device could connect to the Internet to enable access to the World Wide Web. Thus, the computer provided the students with a different way of learning. The computer was also perceived as replacing face-to-face

interaction in the classroom. As such, the presence of the teachers was perceived as unnecessary.

Teacher Perspectives of Moodle

These teacher participants had neither used Moodle for instructional purposes nor attended any training in its use. Nevertheless, they regarded Moodle as a repository for classroom resources, as enabling asynchronous learning, and as saving classroom time. Using Moodle thus, could reduce the time spent in the classroom preparing students for classroom speaking activities and assessments. Their views appeared to have been largely derived from anecdotal accounts of the experiences of others who used it, such as teachers from other departments within the tertiary institution.

Using Moodle to Support Classroom Speaking

The teacher participants used Moodle as a platform to upload a text based speaking exercise every week via the Forum. This strategy was adopted to enable the students who were organised into a number of smaller online groups, to respond to the exercises by sharing and exchanging ideas with one another which could expose them to additional ideas to help them prepare for their classroom based speaking lessons.

Both T1 and T2 were confident that the strategy adopted would achieve the intended object. However, there was no evidence that it did. While T1 was confident that Moodle provided an alternative learning environment and replaced face-to-face classroom interaction, the teacher was unable to provide any observational evidence as to whether students' online written interactions prepared them to speak in the classroom. T2 assumed that as Moodle provided students with opportunities for asynchronous learning, the students would access these online speaking exercises and post their responses on their own. However, this assumption was challenged. The students did not access Moodle unless they were taken to the computer labs and needed to be told repeatedly how to post their responses online.

For T3, boosting the look and feel of the online information to make it appealing to the students was more important. However, it did not encourage more online participation. It was observed during a speaking lesson that the students had to be continuously prompted to speak. During the focus group interview with T3's students, the students reported that many of their classmates did not share their ideas online as many were frequently absent from classroom lessons. They might not be aware of the topics being covered to enable them to contribute their ideas online.

Rules

The teacher participants experienced various challenges that created conflicts and caused tensions as they used Moodle to relate their classroom activities to the

object of the activity. These challenges were shaped by the rules existing within the instructional environment.

One challenge concerned the emphasis on assessments in the programme. The requirement to cover the course content so as to prepare the students for the assessments inhibited these teachers' freedom to explore the use of Moodle. There was a conflict between using Moodle, preparing and conducting the assessments, and covering the required course content.

Another constraint concerned the text-based speaking exercises that were used in the Forum. All three teachers expressed the need to revise the content of these exercises as most of the students were not responding to it online. While T2 and T3 felt that the information in these speaking exercises needed to be revised, T1 believed that the format needed to be varied. However, T3 was cautious on the need to review as it might compromise the initial purpose of adopting the exercises, which was to provide the students with opportunities to practise speaking. These exercises were originally available in printed "Task cards" which were used for the past few years as practice for speaking assessments.

Time was another important issue among the teachers in using Moodle to realise the intended object. They believed that using Moodle constrained the time that was available for them to manage their in-class teaching workload. Besides focussing their time on classroom planning and teaching, as well as conducting and evaluating the assessments, the teachers needed to learn how to navigate through Moodle and upload the speaking exercises. Balancing both demands was challenging both at the onset as well as throughout the teaching block.

The lack of training in the use of Moodle was also a constraint. The centralised eLearning unit consisted of a small team of four personnel with two of them providing Moodle support to all staff. A series of hands-on technical training workshops, online tutorial, help desk support via email or telephone were available to support teachers as well as a one-to-one assistance which was available upon request. As the team was small, they had to be careful with the type of support they could deliver. These teachers, however, were not able to attend the Moodle training workshops as the training times clashed with their classroom schedules. All three teachers taught 19 hours per week. This lack of time to access training was also acknowledged by the Programme Manager during a key informant interview. There was, however, no indication that these teachers consulted the online tutorial site for Moodle and the help desk, or requested the one-to-one assistance.

A final constraint was the lack of access to technological infrastructure. There were scheduling issues with the one shared networked computer lab which posed an obstacle to these teachers who wanted more access to enable their students the opportunity to use Moodle. Although the students could access Moodle after class at designated computer spaces, there was limited time and seats. Classes ended at 3.00pm and these spaces were closed by 5.00pm. The students had to compete with one another to access a computer. Also, the classrooms at the new teaching block did not have any computer facilities with the exception of three teaching

classrooms which were fitted with interactive whiteboards (IWB). Of the three teacher participants, only T2 used the IWB regularly.

DISCUSSION

The findings from this study revealed three main themes based on an Activity Theory framework – teachers’ conceptualisation of the object, mediation of the tool in relation to the object, and the individual teacher in the context of a learning community.

Teachers’ Conceptualisation of the Object

Although the teachers in this study were aware of the object, which was to prepare students to speak in the classroom, they lacked a valid conceptualisation of the object. This limitation could be attributed to the absence of a language syllabus in the programme. A syllabus could have provided details on how the programme and classroom learning activities could have been organised and implemented to realise the object programmes (Graves, 2000; Richards & Rodgers, 2001; Yalden, 1987). Another factor contributing to this lack of a valid conceptualisation of the object is the teachers’ limited content knowledge in the subject matter which would have affected their classroom pedagogical practices. A teacher-directed approach was clearly evident in their classroom instructional practices as they perceived their role as teachers to transmit knowledge and materials that were mainly content-focussed. They lacked awareness about the role of interaction, language input, and feedback which characterises the nature of language learning – knowledge that only language teachers would possess (Richards, 2008, 2010). As such, these teachers were unable to create conditions that could facilitate the students’ classroom language learning and that were important to realise the object.

Further, these teachers lacked a clear conceptualisation of the object. There was a lack of clarity around the object of activity as reflected in the learning materials uploaded on Moodle. Providing the exercises online was insufficient to prepare students to speak in the classroom. Instead, the teachers needed to base the design of the learning materials on the principles of task-based language learning (Ellis, 2003). Task-based language learning promotes negotiation and comprehension of meaning, enables opportunities for teacher feedback, encourages noticing during interaction, and supports reflection and thinking among learners (Albert & Kormos, 2011; Gurzynski-Weiss & Revesz, 2012; Robinson, 2011). Adopting the use of tasks instead of exercises could have helped these teachers to clarify their understanding of the object of their classroom activity.

Teachers’ Conceptualisation of Technology to Mediate the Object

The teachers were unable to conceptualise how their use of Moodle could support their students to prepare for the classroom speaking activity. They expected that by

uploading the exercises online, the students' responses to them would enhance their classroom learning. This expectation indicated that they lacked awareness of the potential of technology for realising the object and of how to integrate technology meaningfully to serve pedagogical goals. More importantly, they were unaware that they needed to scaffold their students' learning to realise this object. Scaffolding recognises that "the primary process by which learning takes place is *interaction* [emphasis added], more specifically, an engagement with other learners and teachers in joint activities that focus on matters of shared interest and that contain opportunities for learning" (Walqui, 2006, pp. 159–160). The use of Moodle could have supported teachers to scaffold their students' language learning as the LMS enabled the teachers to create links to more online information and design activities that could encourage interaction, particularly through the use of learning tasks, as described earlier.

The teachers also regarded the online and face-to-face classroom environments as interchangeable contexts for learning. They had expected that Moodle could function to replace classroom interaction and as such, uploaded the same learning materials intended for face-to-face classroom learning into the online learning environment. This assumption indicated the teachers' lack of awareness that technology could serve as a valuable pedagogical tool. Assuming that teaching in the online environment is the same as teaching face-to-face in the classroom is a misconception that needs to be addressed (Blake, 2013; Compton, 2009). Teaching online requires that teachers adopt roles and responsibilities that are different from traditional classroom teaching approaches (Compton, 2009). It also requires that teachers not only have knowledge about technology and its functions, but also are able to decide what technological devices are appropriate to serve the identified pedagogical goals (Golonka, Bowles, Frank, Richardson, & Freynik, 2014). Moreover, technology is not neutral (Steel, 2009), as it offers affordances and poses constraints to the learning environment. A learning management system (LMS) for example, does not offer a single comprehensive technological solution for classroom pedagogy as commonly assumed (Hedberg, 2006; Naidu, 2006; Steel, 2009).

The Individual Teacher in the Context of a Learning Community

The findings from this study also concern the individual teacher within the context of a learning community. This community involves teachers' colleagues, programme managers or coordinators, administrators, and also students. The individual teacher's ability to perform is reliant on the members of this community (Leont'ev, 1981).

The teachers demonstrated enthusiasm in adopting Moodle at the outset of this research as it was perceived that the technology could save time and support students' language learning (Blin & Munro, 2008; Christensen, Aaron, & Clarke, 2002). Instead, it did not, as is often the case (Brandau-Brown 2013; Kessler & Plakans, 2008). However, this enthusiasm could be sustained and encouraged if teachers were provided with additional time to explore technology and to discuss

its utilisation with colleagues as this strategy could increase their willingness to use it in the classroom (Brandau-Brown, 2013; Haydn & Barton, 2008). Teachers were also reported to be willing to commit their time amidst busy work schedules to share their experiences using technology when they sensed a value in using it and when provided with the opportunities to work as a team to develop and share learning materials (Brandau-Brown, 2013; Johnson et al., 2010). As such, engaging teachers to learn not only *about* technology but also *with* technology might develop positive dispositions to integrate it as part of classroom learning activities (Smith, Moyer, & Schugar, 2011).

Providing Moodle training workshops that mostly focus on technical aspects may not be an effective form of professional development (PD). While such exposure does have the potential to offer some value in terms of exposing teachers to newly acquired technological devices or updated versions of software (Haydn & Barton, 2008), it might not prepare them to effectively integrate technology as part of classroom learning activities (Garrett, 2009; Singh et al., 2012). For PD to be effective, teachers need to be engaged in professional learning, which could consist of formally planned (for example, workshops) and naturally occurring (for example, discussion group) activities (Mitchell, 2013; Singh et al., 2012). Professional learning involves activities that can enable teachers to learn as well as learn *how to learn*, to affect their thinking, knowledge, and skills to change their instructional practices to benefit students' learning (Avalos, 2011; Singh et al., 2012). The teachers in this study could have requested the Moodle training workshops to be provided at times that did not clash with their teaching schedules. During these workshop sessions, the teachers as a collective group could then have collaborated and cooperated as a team to plan and design the use of Moodle for classroom instructional activities to realise the intended object. Their collaboration and cooperation could be continued as they discussed the implementation of their plan and design of using Moodle in the actual classroom.

The uptake of opportunities for professional learning however, needs to be supported and sustained through pedagogical leadership. Although there was a programme manager the focus was on administration. Nevertheless, pedagogical leadership could have been enhanced through an apprenticeship approach that involves teachers participating and collaborating with more experienced others who can provide guidance and demonstration to support the former towards mastery (Dennen & Burner, 2008; Lave & Wenger, 1991). The apprenticeship could involve coaching or mentoring strategies (Beglau et al., 2011; Kopcha, 2012).

CONCLUSION AND IMPLICATIONS

Activity Theory as an interpretive framework served as a suitable lens to observe, explore, and understand how the teachers' conception of the object shaped and was shaped by their use of Moodle in this study. The insights enabled the researcher to interpret human activities as a developmental process interlinking both the level of

the individual teachers and the community within the activity system. Through the use of this framework, this research was able to describe, clarify, and analyse the teachers' conceptions and behaviour against a backdrop of patterns and relationships within the context identified (Engeström, 2001; Lantolf & Appel, 1994; Nardi, 1996). Technology integration in any educational context is therefore, not dependent on the potential of a piece of technology alone or any other sole factor such as the teacher, but "a host of social and cultural elements operating together in complex ways" (Bax, 2011, p. 13).

REFERENCES

- Acar, A., & Kobayashi, H. (2011). Whys and how's of language exchange meetings. *CALL-EJ*, 12(2), 1–10.
- Acar, A., Geluso, J., & Shiki, T. (2011). How can search engines improve your writing? *CALL-EJ*, 12(1), 1–10.
- Albert, A., & Kormos, J. (2011). Creativity and narrative task performance: An exploratory study. *Language Learning*, 61(1), 73–99.
- Antoniadou, V. (2011). Using activity theory to understand the contradictions in an online transatlantic collaboration between student-teachers of English as a foreign Language. *ReCALL*, 23(3), 233–251.
- Avalos, B. (2011). Teacher professional development in teaching and teacher education over ten years. *Teaching and Teacher Education*, 27(1), 10–20.
- Bacow, L. S., Bowen, W. G., Guthrie, K. M., Lack, K. A., & Long, M. P. (2012). *Barriers to adoption of online learning systems in U.S. higher education*. Retrieved from <http://www.sr.ithaka.org/research-publications/barriers-adoption-online-learning-systems-us-higher-education>
- Baker, M., Bernard F.-X., & Dumez-Féroc, I. (2012). Integrating computer-supported collaborative learning into the classroom: The anatomy of a failure. *Journal of Computer Assisted Learning*, 28(2), 161–176.
- Bakhurst, D. (2009). Reflections on activity theory. *Educational Review*, 61(2), 197–210.
- Barab, S. A., & Duffy, T. M. (2000). From practice fields to communities of practice. In D. Jonassen & S. Land (Eds.), *Theoretical foundation of learning environments* (pp. 25–56). Mahwah, NJ: Erlbaum.
- Barab, S. A., Evans, M. A., & Baek, E. O. (2004). Activity theory as a lens for characterizing the participatory unit. In D. H. Jonassen (Ed.), *Handbook of research on educational communities and technology* (pp. 199–214). Mahwah, NJ: Lawrence Erlbaum Associates.
- Bates, T. (2010). New challenges for universities: Why they must change. In U.-D. Ehlers & D. Schneckenberg (Eds.), *Changing cultures in higher education: Moving ahead to future learning* (pp. 15–25). Heidelberg, Germany: Springer.
- Bax, S. (2000). Putting technology in its place: ICT in modern foreign language teaching. In K. Field (Ed.), *Issues in modern foreign languages teaching* (pp. 208–219). London, UK: Routledge Falmer.
- Bax, S. (2003). CALL – past, present and future. *System*, 31(1), 13–28.
- Bax, S. (2011). Normalisation revisited: The effective use of technology in language education. *International Journal of Computer-Assisted Language Learning and Teaching*, 1(2), 1–15.
- Beglau, M., Hare, J. C., Foltos, L., Gann, K., James, J., Jobe, H., ... Smith, B. (2011). *Technology, coaching, and community: Power partners for improved professional development in primary and secondary education*. An International Society for Technology in Education (ISTE) White Paper, Special conference release, Eugene, Oregon. Retrieved from http://www.instructionalcoach.org/images/downloads/ISTE_Whitepaper_June_Final_Edits.pdf
- Blake, R. (2013). *Brave new digital classroom: Technology and foreign language learning* (2nd ed.). Washington, DC: Georgetown University Press.
- Blin, F., & Munro, M. (2008). Why hasn't technology disrupted academics' teaching practices? Understanding resistance to change through the lens of activity theory. *Computers & Education*, 50(2), 475–490.

- Brandau-Brown, F. (2013). Trend becomes tradition: The educational challenges of new communication technologies. *Southern Communication Journal*, 78(1), 1–7.
- Christensen, C., Aaron, S., & Clark, W. (2002). Disruption in education. In M. Devlin, R. Larson, & J. Meyerson (Eds.), *The internet and the university: Forum 2001*. Boulder, CO: EDUCAUSE. Retrieved from <http://net.educause.edu/ir/library/pdf/ffpiu013.pdf>
- Cole, M., & Engeström, Y. (1993). A cultural–historical approach to distributed cognition. In G. Salomon (Ed.), *Distributed cognitions: Psychological and educational considerations* (pp. 1–46). New York, NY: Cambridge University Press.
- Compton, L. K. (2009). Preparing language teachers to teach language online: A look at skills, roles, and responsibilities. *Computer Assisted Language Learning*, 22(1), 73–99.
- Cross, J. (2011). Comprehending news videotexts: The influence of the visual content. *Language Learning & Technology*, 15(2), 44–68.
- Cutrim Schmid, E. (2008). Potential pedagogical benefits and drawbacks of multimedia use in the English language classroom equipped with interactive whiteboard technology. *Computers & Education*, 51(4), 1553–1568.
- Dennen, V. P., & Burner, K. J. (2008). The cognitive apprenticeship model in educational practice. In J. M. Spector, M. D. Merrill, J. V. Merriënboer, & M. P. Driscoll (Eds.), *Handbook of research on educational communications and technology* (3rd ed., pp. 425–439). New York, NY: Taylor & Francis Group.
- Egbert, J., Huff, L., McNeil, L., Preuss, C., & Sellen, J. (2009). Pedagogy, process, and classroom context: Integrating teacher voice and experience into research on technology-enhanced language learning. *The Modern Language Journal*, 93(1), 754–768.
- Ellis, R. (2003). *Task-based language learning and teaching*. Oxford, England: Oxford University Press.
- Engeström, Y. (1987). *Learning by expanding: An activity–theoretical approach to developmental research*. Helsinki, Finland: Orienta-Konsultit.
- Engeström, Y. (2001). Expansive learning at work: Toward an activity-theoretical conceptualization. *Journal of Education and Work*, 14(1), 133–156.
- Engeström, Y., & Miettinen, R. (1999). Introduction. In Y. Engeström, R. Miettinen, & R. L. Punamäki (Eds.), *Perspectives on activity theory* (pp. 1–18). Cambridge, England: Cambridge University Press.
- Franciosi, S. J. (2011). A comparison of computer game and language-learning task design using flow theory. *CALL-EJ*, 12(1), 11–25.
- Franken, M., & Rau, C. (2009). Enabling conditions for professional development of te reo Māori teachers. In S. May (Ed.), *LED 2007: Second International Conference on Language Education and Diversity* [CD-ROM]. Hamilton, New Zealand: The University of Waikato.
- Garrett, N. (2009). Computer-assisted language learning trends and issues revisited: Integrating innovation. *The Modern Language Journal*, 93(1), 719–740.
- Graves, K. (2000). *Designing language courses: A guide for teachers*. Boston, MA: Heinle & Heinle Publishers.
- Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: A review of technology types and their effectiveness. *Computer Assisted Language Learning*, 27(1), 70–105.
- Gruba, P., & Hinkelman, D. (2012). *Blending technologies in second language classrooms*. Hampshire, England: Plagrove MacMillan.
- Guichon, N., Bétrancourt, M., & Prié, Y. (2012). Managing written and oral negative feedback in a synchronous online teaching situation. *Computer Assisted Language Learning*, 25(2), 181–197.
- Gruszynski-Weiss, L., & Andrea, R. (2012). Tasks, teacher feedback, and learner modified output in naturally occurring classroom interaction. *Language Learning*, 62(3), 851–879.
- Haydn, T., & Barton, R. (2008). ‘First do no harm’: Factors influencing teachers’ ability and willingness to use ICT in their subject teaching. *Computers & Education*, 51, 439–447.
- Hedberg, J. G. (2006). E-learning futures? Speculations for a time yet to come. *Studies in Continuing Education*, 28(2), 171–183.
- Hutchby, I. (2001). Technologies, texts and affordances. *Sociology*, 35(2), 441–456.

J. RAMANAIR

- Issroff, K., & Scanlon, E. (2002). Using technology in higher education: An activity theory perspective. *Journal of Computer Assisted Learning, 18*, 77–83.
- Jalkanen, J., & Vaarala, H. (2013). Digital texts for learning Finnish: Shared resources and emerging practices. *Language Learning & Technology, 17*(1), 107–124.
- Johnson, E. M., Ramanair, J., & Brine, J. (2010). 'It's not necessary to have this board to learn English, but it's helpful': Student and teacher perceptions of interactive whiteboard use. *Innovation in Language Learning and Teaching, 4*(3), 199–212.
- Johnson, L., Adams Becker, S., Cummins, M., Estrada, V., Freeman, A., & Ludgate, H. (2013). *NMC Horizon report: 2013 higher education edition*. Austin, TX: The New Media Consortium.
- Jonassen, D. H. (2000, October). *Learning as activity*. Paper presented at the Meaning of Learning Project, Learning Development Institute, Presidential Session at AECT, Denver, CO.
- Jonassen, D. H., & Land, S. M. (2000). Preface. In D. H. Jonassen & S. M. Land (Eds.), *Theoretical foundations of learning environments* (pp. iii–ix). Mahwah, NJ: Lawrence Erlbaum.
- Kaptelinin, V., & Nardi, B. (2006). *Acting with technology: Activity theory and interaction design*. Cambridge, MA: MIT Press. Retrieved from http://www.darrouzet-nardi.net/bonnie/Kaptelinin_Nardi_CH112_Affordances.pdf
- Kaptelinin, V., & Nardi, B. (2012). Affordances in HCI: Toward a mediated action perspective. In *Proceedings of the 2012 ACM Annual Conference on Human Factors in Computing Systems* (pp. 967–976). New York, NY: ACM.
- Karabulut, A. (2013). *Factors impacting university-level language teachers' technology use and integration* (Unpublished doctoral dissertation). Iowa State University, Iowa, IA. Retrieved from <http://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=4150&context=etd>
- Karlström, P., & Lundin, E. (2013). CALL in the zone of proximal development: Novelty effects and teacher guidance. *Computer Assisted Language Learning, 26*(5), 412–429.
- Keengwe, J., & Kang, J-J. (2013). A triangular prism model: Using activity theory to examine online learning communities. *Education and Information Technologies, 18*(1), 85–93.
- Kessler, G. (2013). Collaborative language learning in co-constructed participatory culture. *CALICO Journal, 30*(3), 307–322.
- Kessler, G., & Plakans, L. (2008). Does teachers' confidence with CALL equal innovative and integrated use? *Computer Assisted Language Learning, 21*(3), 269–282.
- Kopcha, T. J. (2012). Teachers' perceptions of the barriers to technology integration and practices with technology under situated professional development. *Computers & Education, 59*, 1109–1121.
- Kreijns, K., Vermeulen, M., Kirschner, P. A., van Buuren, H., & van Acker, F. (2013). Adopting the Integrative Model of Behaviour Prediction to explain teachers' willingness to use ICT: A perspective for research on teachers' ICT usage in pedagogical practices. *Technology, Pedagogy and Education, 22*(1), 55–71.
- Kuutti, K. (1996). Activity theory as a potential framework for human-computer interaction research. In B. A. Nardi (Ed.), *Context and consciousness: Activity theory and human-computer interaction* (pp. 17–44). Cambridge, MA: MIT Press.
- Laferrière, T., Hamel, C., & Searson, M. (2013). Barriers to successful implementation of technology integration in educational settings: A case study. *Journal of Computer Assisted Learning, 29*, 463–473.
- Lai, K.-W., Khaddage, F., & Knezek, G. (2013). Blending student technology experiences in formal and informal learning. *Journal of Computer Assisted Learning, 29*(5), 414–425.
- Lantolf, J. P. (2000). Introducing sociocultural theory. In J. P. Lantolf (Ed.), *Sociocultural theory and second language learning* (pp. 1–27). Oxford, England: Oxford University Press.
- Lantolf, J. P., & Appel, G. (Eds.). (1994). *Vygotskian approaches to second language research*. Norwood, NJ: Ablex.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, England: Cambridge University Press.
- Leont'ev, A. N. (1974). The problem of activity in psychology. *Soviet Psychology, 13*(2), 4–33.
- Leont'ev, A. N. (1981). *Problems of the development of mind*. Moscow, Russia: Progress.
- Li, Z. (2013). Natural, practical and social contexts of e-Learning: A critical realist account for learning and technology. *Journal of Computer Assisted Learning, 29*(3), 280–291.

- Liang, R., & Chen, D-T. V. (2012). Online learning: Trends, potential and challenges. *Creative Education*, 3(8), 1332–1335.
- Meskill, C., & Anthony, N. (2005). Foreign language learning with CMC: Forms of online instructional discourse in a hybrid Russian class. *System*, 33(1), 89–105.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
- Mitchell, R. (2013). What is professional development, how does it occur in individuals, and how may it be used by educational leaders and managers for the purpose of school improvement? *Professional Development in Education*, 39(3), 387–400.
- Naidu, S. (2006). *E-Learning: A guidebook of principles, procedures and practices* (2nd ed.). New Delhi, India: Commonwealth Educational Media Center for Asia. Retrieved from http://dspace.col.org/bitstream/123456789/138/1/e-learning_guidebook.pdf
- Nardi, B. A. (1996). Studying context: A comparison of activity theory, situated action models, and distributed cognition. In B. A. Nardi (Ed.), *Context and consciousness: Activity theory and human-computer interaction* (pp. 69–102). Cambridge, MA: Massachusetts Institute of Technology.
- Nasir, N. S., & Hand, V. M. (2006). Exploring sociocultural perspectives on race, culture, and learning. *Review of Educational Research*, 76(4), 449–475.
- Nunn, R. (2006). Designing holistic units for task-based learning. *Asian EFL Journal*, 8(3), 69–93. Retrieved from http://s3.amazonaws.com/academia.edu.documents/30635081/September_2006_Proceedings_final920.pdf?AWSAccessKeyId=AKIAJ56TQJRTWSMTNPEA&Expires=1430852284&Signature=31X034xCCC%2B0EpgmH45KHkakyw%3D&response-content-disposition=inline#page=122
- Perez, M., Peters, E., Clarebout, G., & Desmet, P. (2014). Effects of captioning video comprehension and incidental vocabulary learning. *Language Learning and Technology*, 18(1), 118–141. Retrieved from <http://lt.msu.edu/issues/february2014/monteroperezetal.pdf>
- Prince, P. (2012). Towards an instructional programme for L2 vocabulary: Can a story help. *Language Learning & Technology*, 16(3), 103–120.
- Rambe, P. (2012). Activity theory and technology mediated interaction: Cognitive scaffolding using question-based consultation on Facebook. *Australasian Journal of Educational Technology*, 28(8), 1333–1361.
- Richards, J. C. (2008). Second language teacher education today. *RELC Journal*, 39(2), 158–177.
- Richards, J. C. (2010). Competence and performance in language teaching. *RELC Journal*, 41(2), 101–122.
- Richards, J. C., & Rodgers, T. S. (2001). *Approaches and methods in language teaching* (2nd ed.). Cambridge, England: Cambridge University Press.
- Robinson, P. (2011). Task-based language learning: A review of issues. *Language Learning*, 61(1), 1–36.
- Sagae, A., Kumar, R., & Johnson, W. L. (2009, July). *Scaling up in speaking proficiency by supporting robust learning behaviors*. Paper presented at the AIED 2009 Workshop, Brighton, England.
- Salomon, G., & Perkins, D. N. (1998). Individual and social aspects of learning. *Review of Research in Education*, 23(1), 1–24.
- Selwyn, N. (2012). Making sense of young people, education and digital technology: The role of sociological theory. *Oxford Review of Education*, 38(1), 81–96.
- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27(2), 4–13.
- Singh, K., Schrape, J., & Kelly, J. (2012). Emerging strategies for a sustainable approach to professional development. In M. Brown, M. Hartnett, & T. Stewart (Eds.), *Future challenges, sustainable futures. Proceedings Ascilite Wellington* (pp. 833–842). Retrieved from http://www.ascilite.org.au/conferences/wellington12/2012/images/custom/singh_kuki_-_sustaining_professional.pdf
- Smith, C. A., Moyer, C. A., & Schugar, H. R. (2011). Helping teachers develop positive dispositions about technology-based learning: What a brief global learning project revealed. *Journal of Educational Technology Development and Exchange*, 4(1), 1–14.
- Steel, C. (2009). Reconciling university teacher beliefs to create learning designs for LMS environments. *Australasian Journal of Educational Technology*, 25(3), 399–420. Retrieved from <http://www.ascilite.org.au/ajet/ajet25/steel.html>

J. RAMANAIR

- Sydorenko, T. (2010). Modality of input and vocabulary acquisition. *Language Learning & Technology*, 14(2), 50–73.
- Toetenel, L. (2014). Social networking: A collaborative open educational resource. *Computer Assisted Language Learning*, 27(2), 149–162.
- van Lier, L. (2004). *The ecology and semiotics of language learning. A sociocultural perspective*. Boston, MA: Kluwer Academic.
- Vinagre, M., & Muñoz, B. (2011). Computer-mediated corrective feedback and language accuracy in telecollaborative exchanges. *Language Learning & Technology*, 15(1), 72–103. Retrieved from <http://lt.msu.edu/issues/february2011/vinagremunoz.pdf>
- Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2013). Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of Computer Assisted Learning*, 29(5), 403–413.
- Walqui, A. (2006). Scaffolding instruction for English language learners: A conceptual framework. *International Journal of Bilingual Education and Bilingualism*, 9(2), 159–180.
- Ware, P., & O'Dowd, R. (2008). Peer feedback on language form in telecollaboration. *Language Learning & Technology*, 12(1), 43–63.
- Wertsch, J. V. (1991). A sociocultural approach to socially shared cognition. In L. B. Resnick, J. M. Levine, & S. D. Teasley (Eds.), *Perspectives on socially shared cognition* (pp. 85–100). Washington, DC: American Psychological Association.
- Yalden, J. (1987). *Principles of course design for language teaching*. Cambridge, England: Cambridge University Press.
- Yang, H. C., & Sun, Y. C. (2013). It is more than knowledge seeking: Examining the effects of OpenCourseWare lectures on vocabulary acquisition in English as a foreign language (EFL) context. *Computer Assisted Language Learning*, 26(1), 1–20.
- Zou, B. (2013). Teachers' support in using computers for developing students' listening and speaking skills in pre-sessional English courses. *Computer Assisted Language Learning*, 26(1), 83–99.

Joseph Ramanair
Universiti Malaysia Sarawak
Malaysia