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POSITION PAPER

Technology, Motivation and Autonomy, and Teacher Psychology in Language Learning: Exploring the Myths and Possibilities

Glenn Stockwell[1]* and Hayo Reinders[2]*†

[1]Waseda University and [2]King Mongkut's University of Technology Thonburi
*Corresponding author. E-mail: gstock@waseda.jp, hayo@innovationinteaching.org

Abstract

The expectations of the impact of technology for language teaching and learning have often exceeded the actual results themselves, where emerging technologies are often believed to be more effective than existing ones simply because they are newer, with little consideration of the differences in associated pedagogies (see Bax, 2003; Levy & Stockwell, 2006). Technology is often believed to be inherently motivating for students and linked to the development of autonomy. The realities of technology and its influence on motivation are proving to be somewhat more complex than perceived for both language teachers and learners (Stockwell, 2013). Technology can provide opportunities for motivated learners but is unlikely to lead to motivation or autonomous behavior in many learners unless appropriate pedagogies are applied that capitalize on the affordances of the technologies and include sufficient training in how to use the technologies for language learning purposes (see Reinders, 2018a). At the same time, the role of teachers in the classroom and their attitudes toward their environment and the pressures that they face (Mercer & Kostoulas, 2018) can also impact technology implementation. This article brings together these three interrelated areas and explores how they link to technology: learner motivation and autonomy, teacher psychology, and pedagogical considerations.

Keywords: technology; autonomy; motivation; teacher psychology

Overview

Some 15 years ago, the late Stephen Bax (2003) published a seminal article that has had a wide-reaching impact on the field of computer-assisted language learning (CALL). The element of that article that had the greatest impact was his discussion of *normalization*, where he argued that technologies would become such a natural part of the learning environment that they would no longer be noticed, and the separation of the field of CALL from that of language teaching and learning in a larger sense would in essence become redundant. To a certain extent, Bax's prediction has indeed come true, and it is quite normal to see technologies being discussed as a natural part of many language teaching and learning environments.

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A less-often cited element of Bax's (2003) article is, however, one that has surprisingly far-reaching implications for the field of CALL, where he described two fallacies that he considered to inhibit the normalization of technology in language teaching and learning. First, he argued that there was a widespread view that technology (specifically software) should be able to do everything, and that the more features that the technology has, the more inherently effective it would be. Second, he suggested that it was believed that the mere existence of technology is the only relevant factor in the successful implementation of technology as a (seamless) part of a language teaching and learning curriculum. Technology should not be viewed as a "miracle cure-all" (Chambers & Bax, 2006, p. 465). Both of these views pointed to an unrealistic perspective of technology, where technology is somehow able to inherently contribute to language learning, largely irrespective of other factors. Technology has often been given "black box" status, where it is expected to be able to contribute to enhanced motivation, more active engagement in learning activities, and enhanced autonomy.

While research into technology in language teaching and learning has come a long way since Bax's (2003) observations, the question remains as to whether these fallacies from more than 15 years ago have been resolved. Language teachers need to ask themselves if they hold a more realistic perspective regarding technology today, in particular about the potential for technology to lead to more successful learning compared with nonuse, and if they, as educators, comprehend the need for adequate training along with pedagogical, administrative, and technical support.

It would be difficult to argue that these overstated views have in fact been invalidated in any universal sense. The emergence of mobile technologies has provided some evidence of this persisting view. Questions are frequently asked about the best app to learn a certain language, most often without accompanying information such as the level of the students, the skills to be targeted, and the anticipated learning outcomes. This perspective is very clearly in line with the first fallacy that Bax (2003) highlighted, indicating that this view continues to persist. Compounded with this, an underlying assumption often held by teachers is that learners will be motivated to use their mobile devices to carry out these app-based learning activities. This corresponds very closely with the second fallacy, where the mere existence of technologies will result in meaningful engagement in activities using them.

With regard to learners, autonomy and motivation are two main areas that have gained considerable attention over the past quarter century (see Little, Dam, & Legenhausen, 2017; Ushioda, 2013). While autonomy is often described as being closely linked to motivation, it certainly should not be confused with being the same thing. Not all motivated learners are autonomous, and similarly, not all learners who have the potential to be autonomous actually are. That being said, few would argue against there being a definite interdependence between motivation and autonomy (Spratt, Humphreys, & Chan, 2002). The importance of motivation in language learning cannot be overstated, given that having sufficient motivation can make up for various deficiencies in learner aptitude and the learning environment (Dörnyei & Ryan, 2015). Needless to say, the opposite could also be said, in that even when the learner has sufficient aptitude and an ideal learning environment, a lack of motivation can result in an inability to make the most of these.

Investigations into motivation as a determinant of success in learning a second language have been subject to some degree of criticism. Clearly, one of the major reasons for this has been the difficulty in defining motivation in any quantifiable sense, mainly because the term is used extremely broadly to refer to rather different, albeit related,

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things, such as overall attitudes toward learning, motivation to engage in a task or activity, or even the reasons why a learner has undertaken language study in the first place. Motivation itself has been the focus of research into second language teaching and learning for decades, often influenced by research from behavioral psychology (e.g., Deci & Ryan, 1985; Dörnyei, 2005; Gardner & Lambert, 1972; Gardner & MacIntyre, 1993). Without going into the various perspectives on the role of motivation and second language learning, the numerous discussions and research results to date make it clear that motivation is an individual, an environmental, and a social construct that is prone to change and influence from both direct and indirect factors (see Dörnyei, MacIntyre, & Henry, 2015; Larsen-Freeman, 2015). Even in the absence of a clear and quantifiable definition of motivation, most teachers have some fundamental idea of what it means for their learners to be motivated in a broad sense, and the "motivated" learner is seen as being desirable, with the expectation of more successful learning outcomes than with learners who do not possess this motivation.

Autonomy is another area where a good deal of discussion has taken place over the last several years, with learning moving from a largely teacher-centered undertaking through to a more learner-centered one. The term autonomy itself has been notoriously difficult to define, often expressed in rather broad terms such as experiencing oneself as the origin of one's behavior (Dörnyei & Ushioda, 2011) and the capacity to take control of one's learning (Benson, 2013). A more operationalized definition from Murray (2014) categorizes autonomy as taking responsibility for goal setting, materials selection, strategy implementation, monitoring progress, and assessment. As Schwienhorst (2011) pointed out, autonomy is likely to vary greatly across skills, and it is difficult to make a case for autonomy associated with one particular area as having any degree of transferability to other areas. Others have argued that Holec's (1981) view of autonomy as an individual internal construct that is independent of outside social interactions does not accurately reflect the various evolving independencies and interdependencies that take place during the learning process (see Lewis, 2014). Each of these positions on autonomy combine to illustrate the elusiveness of the term. For the most part, teachers would tend to have an idea of what it is that they would like learners to achieve with regard to their learning (e.g., to be able to go beyond the teacher requirements for learning and to select and undertake activities that develop their own language learning skills without direct instruction), but the factors that lead to this state remain more difficult to pin down accurately. Part of this complexity can be seen in the discussion by Benson (1997), who provided three versions of autonomy: technical, psychological, and political. In this distinction, Benson saw technical autonomy as "the act of learning a language outside the framework of an educational institution and without the intervention of a teacher" (p. 19). Psychological autonomy includes the attitudes and abilities that allow the learner to take responsibility for their learning, and political autonomy includes the framework—most commonly the educational environment—that can lend support to learners' individual learning. While this is far from the only way in which autonomy can be dissected, this example does serve to show the sheer range of interpretations of autonomy that can be derived from the notion. In much the same way as motivation, however, when teachers use the term autonomy, it is likely that they have some broad concept of desirable behavior that they look for in their learners. There would, of course, be some individual variation, but one would generally expect that teachers would consider autonomous learners to be those learners who are willing and able to go beyond the requirements of the course to seek out learning resources for themselves and use them in an effective manner.

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The position of the teacher in the overall equation with regard to facilitating technology usage is another important area, with teachers often possessing exaggerated expectations as to what learners are capable of with technology (Hubbard, 2004) and underestimating their own abilities to use technology effectively in teaching as well as the potential learning outcomes from technology (Yaghi & Abu-Saba, 1998). The digital natives concept proposed by Prensky (2001) has done very little to alleviate these concerns. While some younger users of technology may have some advantages in terms of the ways in which they use technology for private purposes, this has not been shown to be an accurate determinant of their ability to use it for learning purposes (Stockwell & Hubbard, 2013). The perception that learners are more capable users of technology than teachers can lead to unrealistic expectations as to what they can achieve with the technology in educational contexts as well, which can potentially impact teacher motivation. Pressure from the institution (Stockwell, 2013), fears regarding the superiority of learners with regard to technology usage (Levy & Stockwell, 2006), and unrealistic outlooks concerning technology making language teachers obsolete or redundant (Wray & Medwell, 1991) have the potential to detrimentally affect the way in which the teacher engages with the technology, which ultimately has the potential to impact the learning environment.

From this brief introductory discussion, it is clear that technology can have far-reaching effects in the language classroom, but that it is often surrounded by somewhat unrealistic expectations that can impact the way in which it is viewed and used by both teachers and learners. The realities of technology with regard to motivation and autonomy, along with the real and perceived issues faced by teachers, are discussed in more depth below.

Technology and Learner Motivation and Autonomy

The position of technology as a motivator has been quite widely observed in the literature, despite receiving only moderate support from empirical evidence (for a discussion, see Golonka, Bowles, Frank, Richardson, & Freynik, 2014). This viewpoint of technology as a means of motivating learners is based largely on short-term studies where the motivational impacts are for the most part anecdotal or based on subjective measures from the learners themselves (e.g., Felix, 2005; Hubbard, 2005). Indeed, technology as a motivator is likely a concept that is more associated with a time when technologies were more of a novelty (e.g., Murray, 1998), but given the shift in the balance of power toward learners as predominant technology users, rather than teachers, it is not surprising that this view is no longer mainstream (Stockwell, 2013). This being the case, the technology itself is unlikely to hold any long-term motivational value, and sustained usage of the technology will depend on other determining factors. Indeed, contrary to the opinion held by many teachers, according to Bax (2003), technology in itself has not shown to be an accurate predictor of task engagement. Stockwell (2019) found that an increased penetration rate of smart phones had very little impact on both the amount and quality of engagement for learners in completing online activities, and that other factors such as the environment and training were far more likely to have made a difference.

Technology in itself is highly unlikely to lead to autonomy, but rather, technology has the potential to provide opportunities for engaging with the target language for learners who possess some degree of autonomy. The complexities of autonomy have been outlined above, but technology emphasizes another issue that needs consideration for learners to move toward autonomous behaviors—the need for learners to have

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sufficient skills in order to engage in tasks in a meaningful manner (Hubbard & Romeo, 2012; Reinders, 2018a). Autonomous behavior is highly unlikely to occur without a sufficient balance of motivation and skills (Stockwell, forthcoming). That is, learners who do not possess sufficient skills to know how to undertake the language learning activities without constant encouragement and support from the teacher (regardless of whether this takes either a carrot or a stick approach), they are unlikely to sustain this engagement for any meaningful duration. At the same time, even if the learners do indeed possess these skills, if they do not have the motivation to actually engage in the activities, then these skills may be largely wasted. Another important observation is that both motivation and skills need to be nurtured. The lack of transferability of skills (and even motivation) from one field of learning to another—be it learning vocabulary, developing listening skills, or writing an academic essay—means that autonomy should not be assumed just because it is exhibited in a given related area. Learners may find that they are more motivated to engage in one type of activity just because of the nature of this activity (and in the case of technology, the tools that are used may result in a more positive attitude toward this type of activity), but this motivation may be somewhat reduced in other areas. Needless to say, having sufficient skills to be able to engage in unfamiliar areas would be seen as a prerequisite to learning effectively, and thus support is once again vital for success.

Where we see technology having the opportunity to assist in motivating learners is through the social interactions that new communication tools make possible (Ushioda, 2011). Both motivation and autonomy are thought to exist within social contexts that can be enhanced by technology, but simply engaging in online communication is highly unlikely to automatically result in autonomy or have any long-term impact on motivation. Teachers often place expectations on learners to interact with one another through social tools such as Facebook, but communication is rarely sustained and is highly dependent upon ongoing intervention from the teacher (Appel & Mullen, 2002; Tran, 2018). Such behavior could hardly be called autonomous, and motivation is extremely closely linked to the degree to which the teacher is willing and able to interact with others. Spontaneous interaction by learners is indeed possible, but this is more likely to be seen with higher-level learners or those who have already been able to establish links with members of the online communities in which they participate (Choi & Nunan, 2018; Pasfield-Neofitou, 2012). What becomes evident is that technology itself is not the key issue in motivating learners, but rather what they can do *with* the technology and whether or not they see how this relates to their individual language learning objectives.

Technology and Teacher Psychology

Only in the past several years has the importance of teacher psychology started to attract the attention that it deserves. The psychology of the learner has long been an important aspect of research and discussion in language teaching and learning (e.g., Dörnyei & Ryan, 2015; Williams & Burden, 1997; Williams, Mercer, & Ryan, 2016), and this has formed the foundation for the majority of theories that account for how learners learn a language, how they interact with others, their motivation for learning languages, and how they regulate themselves in the learning process. However, we have seen less research regarding the psychology of language teachers. In much the same way as learners develop a self-image of themselves as learners of a language, teachers also develop a self-image as users of technology (Sahakyan, Lamb, & Chambers, 2018). Hardly surprising, in much the same way that learners come into the classroom with an idealistic

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image of what they expect the language classroom and teacher to be like, teachers possess similar ideas, with expectations of the types of learners that they hope to have in their classes (Dewaele & Mercer, 2018; Kalaja & Mäntylä, 2018).

Teacher education itself is an enormous field and has been the focus of numerous publications over the years that attempt to provide teachers with some foundation to prepare them for teaching from a range of different perspectives, including historical, practical, and social viewpoints (e.g., Horwitz, 2013; Johnson, 2009; Larsen-Freeman & Anderson, 2011). Training for using technology in language teaching and learning has, however, been somewhat less prevalent. There have been a number of publications targeted toward teacher education with technology (e.g., Hubbard & Levy, 2006; Son & Windeatt, 2017), but technology has remained an area that has been somewhat neglected in courses in terms of having clear objectives in achieving relevant competencies and understanding how to make sense of the range of tools that are available (Son, 2018). The motivation for teachers to use technology itself is also extremely varied, ranging from internal-initiated (i.e., the teacher makes the decision to use the technology) to external-initiated (i.e., the decision to use the technology is made by others; see Stockwell, 2013, for a discussion). Teachers have often expressed reluctance to accept new approaches (Reinders, 2018b), and it is not surprising that this is also evidenced in adoption of technology.

In the absence of comprehensive in-service teaching, the onus for learning how to use technologies effectively for their individual environments falls squarely on the teachers themselves. Teachers who possess a certain degree of agency will find it less imposing to do this (White, 2018), but teachers often struggle with gaining recognition for their efforts to improve their skills (Costley, 2011) and are faced with inequities regarding access to such learning (Evans, Guile, & Harris, 2011). External pressures to use technology are often the result of decisions that were made by administrators without sufficient consultation with the teachers who become the end users of the technology, so it is not surprising to see that there is some degree of reluctance expressed by teachers who feel dissatisfied or even distrust of the technologies. Such negative attitudes often filter down to the learners, who can sense their teachers' lack of enthusiasm (or even criticism) about the technologies that they are required to use, and this can have a detrimental effect on the learning environment on the whole.

For most teachers, gaining sufficient skills in using technology without training has proven to be difficult (Robb, 2006), with the burden of when, where, and how to gain these skills falling on the shoulders of the teachers themselves, often in their own time. Teachers need to have a knowledge of the range of tools available, and they must also know the best ways in which to apply appropriate technologies to the learning goals of the varied contexts in which they find themselves, but finding ways of acquiring such knowledge without assistance requires teachers to seek out information about the resources through accessing relevant research and engaging in dialogue with others who have experience (Stockwell, 2009). As has been addressed above, another ongoing problem is finding ways to train learners to use resources effectively for language learning, but in many cases the teachers themselves are also somewhere along the learning curve. To achieve better training, Kolaitis, Mahoney, Pomann, and Hubbard (2006) suggested a collaborative approach where teachers can start on a smaller scale in project groups initially while interacting with more experienced peers, and as teachers become more capable of supporting one another in technology training groups, they can then extend their new technology skills to regular classroom settings. To do this successfully, the teacher needs to be able to view the materials and the environment from the

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perspective of the learner (Hubbard, 2004); working in project groups enables participants to experience new materials and approaches from the perspective of both the teacher and the learner. Given the importance of learner training so that learners will be able to use technological resources as a part of their learning, sufficient time needs to be devoted for teachers to learn the technology. Both teachers and learners will need to find the best way of providing training that suits the dynamics of that particular group, often in the midst of the curricular constraints.

Pedagogical Considerations

The complexities of maintaining motivation and encouraging autonomous behavior through technology are intertwined with a range of factors relating to the technologies themselves; the experiences, goals, views, and expectations of both the learners and teachers; the institutional environment; and the support for learning how to use these technologies effectively and to deal with difficulties as they arise. Learning to use a technology for language learning does not necessarily mean that the technology is something they have not used before, although it might be the case with emerging technologies, such as a new learning management system or a smart board. Learning how to use the range of functions of existing technologies, even as simple as an audio player, in a way that can enhance the learning process can contribute to improved learning outcomes (e.g., Romeo & Hubbard, 2010).

Motivation is extremely dynamic and volatile and may be affected by a range of factors that go beyond the technology itself. The short-term motivational benefits of certain technologies are unlikely to lead to any meaningful sustained interaction, so teachers need to try to maintain motivation in other ways that do not depend on the technology itself. Similarly, autonomy is not a natural outcome of using technology, but is rather very much a product of the skills and attitudes toward learning certain elements of the language. Finally, teacher considerations in the overall context must also be given attention, as they will directly impact learner attitudes toward technology, the ways in which learners use the technology, and the longevity of usage (see Stockwell, 2013). These include how teachers are able to maintain their own motivation and skills with the use of technologies, often in the face of unrealistic expectations regarding what learners are capable of.

A list of pedagogical principles for using technology in the classroom are provided below, based on the discussion above. These principles were designed as a way to promote best practices with regard to deriving maximum benefit from technology use for language teaching and learning. The choice of technologies will depend heavily on the individual context, given that access to technology will differ among learners. Indeed, arguing for the latest technologies relates very much to the fallacies pointed out by Bax (2003), and as such, the salient point is not what the technologies themselves are, but that the available technologies are used in a way that enhances the learning process as much as possible.

1. Seek out peers who have used technology as a part of their language teaching environments

Observing technology in use can give practitioners a good idea of the problems that might be encountered when using that technology. As Cairns (2011) suggested, communities of practice in the workplace allow participants to experience real-world

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environments and make it possible for teachers to learn in a participatory manner through social interaction with their peers (Wenger, 2000). Interactions with experienced peers can lead to the development of a support structure that can give assistance when necessary when implementing technologies.

2. Become familiar with the tools in a range of contexts in which learners would be expected to use them

It is not uncommon for teachers to assign online activities to learners without having an idea in mind of when and where learners will actually interact with them. In an era where there are expectations for some elements of learning to take place outside of class (e.g., flipped classrooms), it is important to have some idea of exactly when and where this type of learning will take place, and the types of difficulties that learners might encounter to make it possible to add some preventative measures early on. For example, Stockwell and Liu (2015) used the same online vocabulary learning activities with students in Japan and Taiwan, but found very different usage patterns. Learners in Japan used their mobile phones while commuting, whereas Taiwanese students used their computers at home. The primary reason for this difference was that the Japanese students were commuting by train or bus, while the Taiwanese students were commuting by motorcycle. Much in line with Hubbard's (2004) ideas, experiencing task engagement as a learner can help teachers to get a feel for the problems such as distractions and ideal length of time to spend on activities, and to deal with any potential problems such as network and battery issues, boredom, and a lack of necessary strategies to use the tools effectively.

3. Avoid overestimating learners' abilities to use technology for learning purposes

As has been discussed above, learners will come into the classroom with a range of experiences and skills that may or may not equip them for learning through technology. Many learners are quite familiar with using technology (particularly mobile technologies) for private purposes, but this should not be taken as a foregone conclusion (Hubbard, 2004) and is a rather poor determiner of their ability to use technology effectively for learning a language. Many learners will have had some experiences with learning through technology, but these will often be negative, either by being required to use resources without appropriate training or attempting to self-study through online tools and apps with minimal success. Providing sufficient training can have an enormous impact on attitudes to learning through technology as well as enabling both teachers and learners to make more effective and efficient use of technology (Hubbard & Romeo, 2012).

4. Provide ongoing hands-on training in multiple strategies for learning specific skills

Learners will likely bring with them various preferences for using different tools (Levy & Stockwell, 2006), so providing a range of learning strategies can appeal to a broader student base. Strategy training should go beyond superficial explanations of the strategies based on assumptions that the learners have understood what is required of them, but rather should include an element where learners can actually try different strategies with a technology during class time to make sure that they can carry them out without supervision. These might include showing learners how to slow down the speed while listening to a passage to make it easier to isolate individual words or phrases or advising

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learners to use the pause button while listening to give them time to carry out activities such as shadowing. It is quite common for learners to forget strategies if they don't use them. Often they have selected only one or two out of a range of options, so providing training on an ongoing, cyclical basis gives them a chance to try strategies that they did not choose to use the first time that they were introduced. Different skills are likely to have a variety of strategies that can be applied, so ensuring that learners know exactly how the strategies can assist them can also help them to engage in activities with a clearer idea of what they are trying to achieve. Helping learners to see the relationship between the strategies that they already possess and technology, as well as showing new strategies that have emerged as a result of functions inherent in technologies, can give them a strong foundation on which to explore how to improve their own learning processes. Whether strategy training is carried out in the first or second language will depend very much on learner proficiency in the target language, but it is important that the learners can clearly comprehend and reflect upon the strategies that they are shown and they choose to adopt.

5. Avoid assumptions about global autonomy based on task-specific sustained engagement

Even if learners exhibit sustained engagement in specific tasks or activities, this is not a reliable indicator of their ability to engage in other activities without further training. Learners can give the impression of global autonomy as a result of their behavior when engaging in certain tasks, but this is unlikely to be transferred to other types of tasks unless they are provided with training (cf. Schwienhorst, 2011). While sustained engagement might be considered as a condition for autonomy, engagement itself does not fulfil the conditions outlined by Murray (2014), which includes setting goals, selecting materials, implementing appropriate strategies, and keeping track of their own progress. That being the case, unsupervised (e.g., outside of class) sustained engagement can give the illusion of autonomy that may or may not actually exist. Training learners in a range of skills and areas with multiple strategies over time may lead to higher levels of sustainability, but this does not necessarily equate with autonomy.

6. Encourage dialogue between learners and the teacher about strategies used

Strategies tend to be rather private, where very few learners will have had the opportunity to discuss the strategies that they have used with the teacher or with other learners. Through taking the time to consider and explain the strategies that they use with others, learners can think through the strengths and weaknesses of strategies and reflect on their use of strategies (Romeo & Hubbard, 2010). An advantage of having teachers be a party to this discussion is that the teachers may also have the opportunity to find out about strategies that they were not aware of, broadening their own repertoire of strategies that they might then introduce to later classes. Hearing the voices of the learners can also make the teachers better able to train learners, which can serve the double function of potentially enhancing learning and having a motivating effect on the teacher.

Conclusion

The purpose of this article is to dispel some of the myths of using technology for language teaching and learning, and to encourage teachers to take a more balanced view of

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technology when introducing it in their own language teaching contexts. As Bax (2003) pointed out, technology is often viewed somewhat unrealistically in what it can achieve, and knowing the limitations of the technology—and the limitations of the users of the technology—can help teachers to identify how these limitations can be overcome. Teaching with technology is a challenge. There are multiple skills that both teachers and learners require to create an optimum learning environment, and these are often difficult to acquire without appropriate support. Seeking out communities of practice in the workplace can be a good starting point, but it is important for teachers to bear in mind that the learners themselves are likely to be highly inexperienced users of technology for language learning. Providing varied, ongoing training to learners that caters to multiple skills can help learners have a better idea of what they should be doing with technology. Over time, these skills might motivate learners to engage in activities in a more sustained manner. Through such experiences, the learners may get a sense of what they need to further develop their skills, which could in turn lead to autonomous learning skills. What is key in all cases is patience, and both teachers and learners need to have an open mind to new approaches and practices that can positively change the face of the learning environment.

Author ORCIDs. Glenn Stockwell, 0000-0001-6420-3788.

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