1   Introduction

Glenn Stockwell

Introduction

Computer-assisted language learning (CALL) is a field that has featured as the theme of books, journals, and academic conferences over the past few decades. There are several internationally refereed English-language journals in the field, emanating from the US (*CALICO Journal*, *Language Learning and Technology*), Europe (*ReCALL*, *Computer Assisted Language Learning*), and Asia (*CALL-EJ, The JALT CALL Journal, PacCALL Journal*), as well as numerous publications in many other languages. Since its beginnings over half a century ago (see Levy, 1997), there has been an increasing range of technologies available to CALL practitioners (see Stockwell, 2007a) founded on different theories (Hubbard, 2008) and pedagogies (Beatty, 2003). While this increase in range has the potential to provide welcome variation and diversity, it can also be overwhelming, and the range of variables can seem immense both to teachers new to the field and to those who have established themselves in one particular aspect of the field. One of the best ways of managing diversity is to be aware of the issues involved in it, so for that reason, this book sets out to investigate the various aspects of diversity and to present this in a digestible manner. The diversity we see in CALL may include diversity in the technologies, diversities in the environments in which CALL is used, diversity in the pedagogies employed, diversity in the users of CALL, and diversity in the methods used to research and further our understanding of CALL. Each of these diversities has the potential to change the way in which we view, use, and even evaluate CALL.

This chapter forms the foundation of the book by looking at a number of key issues that are pertinent to the field of CALL as it is presented in the following chapters, starting with a description of the theme of diversity, discussions of theory in CALL research and practice, the affordances of technology and the issue of learner autonomy in CALL, and finally, an examination of the use of the term "CALL." This is followed by an overview of the structure and content of the book.

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Some key issues

The theme of diversity

Diversity refers to things that are different and varied. There are times when we value diversity, such as when we are deciding on what to eat, what to wear, or even what type of television we may choose to buy. There are also times, however, when diversity can have a restricting effect, such as when we have too many choices – often with limited information – and we find it difficult to select from the range of options available (see Lehrer, 2009). Viewing diversity as a merit or demerit is conceivable also in CALL. Having a range of options from which to choose can be a positive point in that it is possible to select what is most appropriate to our given situation, but on the downside, the increasing number of choices that are available can make it difficult to decide what is best. Those who are new to CALL may find themselves daunted by the sheer range of technologies that exist, with little idea of how to break into the field, and even those with experience of technologies – including technologies in the language classroom – may struggle to keep up with the ongoing developments, not only in the technologies themselves but also in how they are used.

This book deals with various aspects of diversity, but it is only possible to cover a small portion of the possibilities that diversity in CALL research and practice might encompass. Technology is perhaps the most obvious aspect, given that it is what immediately comes to mind for many when CALL is discussed. Typical questions from those who are new to the field – even experienced language teachers – often include "what program is the best for teaching a foreign language?" or "how good is such-and-such a product for learning a language?" These questions, while seeming valid at face value, fail to take into consideration a number of critical factors about the environment in which a program may be used. That is to say, people would be far less likely to ask "what textbook is the best for teaching a foreign language?" without including some kind of qualifier regarding language skills or areas, level of the student, the means of teaching, and so forth. Everything in CALL occurs within a context, and this context will have an enormous impact on the choice of the technology and how it is used. We have seen numerous examples in the literature where generic technologies have been used in language teaching, ranging from word processing (Dall, 2001), email (Stockwell and Harrington, 2003), and chat (Darhower, 2002), through to podcasting (Rosell-Aguilar, 2007b) and mobile phones (Kiernan and Aizawa, 2004). We can also see examples of technologies that have been developed by CALL practitioners themselves, with detailed descriptions of how they work and how they may be used, including software for teaching endangered or minority languages (Ward and Genabith, 2003; Cushion, 2004) and sophisticated intelligent feedback systems (Tokuda

and Chen, 2004). Why is there such a diverse range of technologies being used? Put simply, they vary because of the individual context within which they are used. The context is an extremely complex combination of factors, including the learners, the mode of instruction, the learning goals, the institutional environment, the experience and policies adopted by the teacher, and so forth, and each of these have an effect on decisions about technology.

The learners are perhaps one of the most diverse and constantly changing aspects, in terms of their backgrounds, goals, expectations, and even their lifestyles. They are typically the end users of the CALL materials and activities that they engage in and, as a result, it is up to CALL practitioners to constantly bear in mind who the learners are and what they want to achieve. Learners who have never used technology before for learning purposes may first need to overcome their expectations – and perhaps even their fears – of what using technology in language learning entails. Equally difficult to contend with might be a situation where learners have used CALL before but had a bad experience, meaning that the negative preconceived images that they have of CALL will need to be replaced with more positive ones in order to encourage them to engage with CALL in a more active manner. Learners' experiences of using technology for non-educational purposes will also likely have an effect on their expectations of technology in the classroom. If, for instance, learners are used to using a particular text-chat program to communicate with friends and family, but the text-chat program that they are required to use for educational purposes lacks features or functionality that are found in the program they use in their everyday lives, this is likely to have an effect on their opinions and attitudes towards not only the educational chat program but possibly also chat for language learning. In this way, learners' particular experiences with using technology in their everyday lives will naturally impact their acceptance and perceptions of technology for language learning. While it might be expected that experience or regular use of technology outside of learning situations can be linked to increased use for language learning, caution should be exercised before making assumptions that this will necessarily be the case (see Barrette, 2001). Added to this is the fact that learners constantly change in their own experience and preferences as a result of what they do both inside and outside of the language classroom, so there is some danger in viewing them as a static and unchanging entity. Furthermore, teachers need to keep in mind that learners will often do things that are not expected (see Chapter 2; Fischer, 2007), and at the same time not do things that are expected (Tanaka-Ellis, 2010), meaning that teachers find themselves in a position of needing to monitor the learners to ensure that learning goals are being achieved, even if there is some variation in how learners go about doing this.

The mode of instruction may shape and at the same time be shaped by the learning goals and the institutional environment. For example, while newer

technologies used in distance education have opened up a wide range of possibilities for language teaching that were not previously possible (see Chapter 5 for a discussion), there are still some limitations in what can be taught through distance education when compared with face-to-face environments. The instructional mode may also influence the technologies that are available. For institutions that offer exclusively distance education, such as the Open University in the UK or Universitat Oberta de Catalunya in Spain, technology takes on an immediate and central role for many aspects of instruction, and such institutions need to ensure that they have stable and good quality technology so that instruction can be carried out smoothly. In contrast, in institutions where the instruction is almost exclusively face-to-face, there may be somewhat less of a need to use technology for instruction, making administrators less likely to dedicate money and resources on state-of-the-art technology. In these examples, the mode of instruction that has been adopted by the institution (i.e. distance vs. face-to-face) has a direct influence on what technologies are available to teachers and students, which in turn has the effect of expanding or limiting the technological options in the language learning environment. Where technology already exists in an institution, many teachers are faced with a situation where they need to adapt their teaching to that technology. One of the most common examples is when an institution adopts a learning management system like WebCT, and teachers find that their teaching revolves around this environment (e.g. Campbell, 2004). Other teachers may take a more proactive position, and while it might be possible to ask their institution to purchase new technologies to achieve certain learning goals, financial constraints may necessitate self-development of technologies either individually (e.g. Lee *et al*., 2009) or collaboratively (e.g. Corda and Jager, 2004), use of free or open source materials like Moodle (e.g. Hunter, 2008), or capitalizing on technologies that learners already possess, such as mobile phones (e.g. Kiernan and Aizawa, 2004) or MP3 players (e.g. O'Bryan and Hegelheimer, 2007).

Finally, the experience and beliefs of teachers will also have a large impact on technology use. There has been an increasing body of work on teacher education in CALL (e.g. Hubbard and Levy, 2006; Hong, 2010), arguing that training in CALL, be it formal or informal, is necessary for more systematic and balanced integration of CALL. Being more experienced with CALL, however, is not an accurate predictor of "innovative or integrated" use (Kessler and Plakans, 2008, p. 277), so this suggests that there are other factors at play which affect whether or how technology is used in the language classroom. These may include, for instance, teachers' policies towards the use of technology for teaching, or even just an interest in technologies. Teachers who are interested in but inexperienced with technologies can compensate for a lack of skills with enthusiasm, resulting in either a broad use of relatively limited technologies, or constant experimentation with the latest technologies on an ongoing basis.

Alternatively, teachers may choose to not use technology, not because of a lack of knowledge, but rather because they have strong views about what should or should not be taught using technology, and even if technological options are available, they may reject them in favor of non-CALL means.

Thus, the context will greatly impact not only what technologies are available, but what technologies are used and for what purposes. The diversity that is present in the context makes for an immense range of factors for CALL practitioners to consider regarding technology usage, and thus to make informed decisions, they need to be keenly aware of their individual context, bearing in mind its highly changeable nature. To conclude this discussion, it should be noted that diversity is also present in the way that this book has been approached. The authors of the chapters have approached the different aspects of the chapter in varied ways, in terms of the length and angle of their discussion of the general issues, the types of examples chosen and how they are presented, as well as the implications they raise. The very concept of diversity itself is perceived and approached differently, but perhaps this illustrates the difficulty in trying to put the field of CALL into neat boxes. It is a field that by nature is divergent and dynamic, and for this reason, we might argue that diversity in CALL is something that is not only inevitable, but also something that is necessary to provide the best options for the myriad contexts in which it is used.

Theory in CALL research and practice

Theory can provide "a context and a view of language and language learning" (Levy and Stockwell, 2006, p. 135) when undertaking both research and practice. The relationship between theory and practice is a bidirectional one, where, as Egbert (2005, p. 5) claims, practice "informs theory but theory should also inform practice so that not so much of our teaching is based on trials and errors." Given its obvious importance, why does it not appear as a chapter in this book? One of the main reasons is that CALL practitioners are predominantly consumers of theory, choosing to "review, select and apply theories produced by others" (Levy and Stockwell, 2006, p. 139), and considering the scope that any theory of CALL would be expected to encompass, it is not surprising that there are no overarching theories in CALL. A single theory could not possibly account for the complexities that now make up the CALL field, and it is natural that there will be multiple theories to attempt to account for these complexities.

What theories, then, feature in CALL? In a review of CALL theories cited in the *CALICO Journal* from June 1983 through to September 2007, Hubbard (2008) noted that there was a very wide range of theories that were used in the articles that were published over this time, but the overwhelming majority of

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these occurred only on a single occasion. Theories that appeared at least three
times over this period included activity theory, cognitive theory of learning, edu-
cation theory, government and binding theory, Jung's theory, lexical functional
grammar theory, sociocultural theory, sociolinguistic theory, generative theory
of multimedia, pedagogical theory, phonological theory, item response theory,
schema theory, learning theory, and (second) language acquisition theory (p.
392). Of these, theories pertaining to second language acquisition or linguis-
tics were by far the most common, making up thirty-eight of the ninety articles
that included reference to a theory. If theories relating to learning are grouped
(i.e. educational theory, pedagogical theory, and learning theory), these make
up a further twenty-seven articles, which, combined with language acquisition
and linguistics, comprise sixty-five of the ninety theories that appeared at least
three times in the corpus. This is a clear indication of the fact that although the
theories used are quite varied, there is still a strong tendency to focus around
theories from education or second language acquisition.

    At the very minimum, any theory of CALL needs to take into consideration
two aspects – the learning of the language, and the interaction between the
learner and the technology through which they are learning. The first of these
two aspects relies heavily on existing theories in second language acquisition
(SLA), and a look at the CALL literature shows that there is quite a body of
research that refers to theories used in SLA research, such as the interaction
hypothesis (Stockwell and Harrington, 2003; Yanguas, 2010), constructivism
(Felix, 2002; Weasenforth *et al*., 2002), sociocultural theory (Tanaka, 2005;
Warschauer, 2005), and activity theory (Blin, 2004; Gromik, 2005). Each of
these theories has a very solid position within research on CALL, providing a
different perspective on the language learning process that is facilitated by the
technology (see Levy and Stockwell, 2006, for a discussion).

    The second aspect of the interaction between the technology and the learner
has received far less attention, but there have been a few attempts to consider
the impact of the technology on how learners learn a second language using
technology. Perhaps one of the most notable distinctions that has been raised
in this regard is that of the tutor and tool. A tutor evaluates learner output and
responds according to this output, whereas a tool does not evaluate learner
output, but rather serves to "augment learner capacities" (Levy, 1997, p. 184).
Inherent in CALL as a tutor is "teaching presence" (see Hubbard and Bradin-
Siskin, 2004), where the computer simulates the presence of the teacher in
the learning process. Considering this pseudo-teacher position where the com-
puter takes on characteristics of a teacher, then the effect of the instructional
design built into the tutor will affect how language learning occurs. In con-
trast, given that a tool is used by learners to achieve other objectives – such as
using a word-processor to write an essay or email to communicate with native
speakers – the design of the instruction is not inherent in the technology, but

rather based on how the teacher chooses to use the technology to achieve pre-
determined goals. It is natural for this distinction to have an impact on any
theory that might be used in CALL, but in both cases it is important to bear in
mind that the primary objective is learning a second language, and to that end,
it would be expected that a view of how to learn a language must be included
in the instructional design.

Theory does have an important place in CALL, and useful discussions may
be found in Levy and Stockwell (2006), Hubbard (2008), and a special issue
of the *CALICO Journal* (2011). An excellent general resource on theories in
second language learning has been provided by Mitchell and Myles (2004).
It should be pointed out that while a detailed overview of theories has not
been included in this book, theory has not been ignored, with reference made
to sociocultural theory (Chapter 4), semiotic theory (Chapter 6), and activ-
ity theory (Chapter 7) in relation to the individual examples of research and
practice.

Affordances of technology

Originally coined by Gibson in 1977, the term "affordances" has appeared with
increasing regularity in a wide range of genres over the past few years, and in
simple terms may be defined as what something makes possible (see Hutchby,
2001). Discussions of affordances in CALL contexts most commonly center
around the enabling or restricting capabilities of technology in language learn-
ing, and the term is used to refer to how technology may help or hinder the
learning process. Affordances of different technologies make them useful in
facilitating learning in different ways. In listening, for example, technologies
such as audio-conferencing software make it possible to speak to someone in
real time even if separated geographically. Other technologies, such as portable
MP3 players, allow learners to carry audio recordings with them and listen to
them at a time and place that is convenient, such as at home or even on a busy
train. While both of these technologies may be used to give learners access
to speech from a teacher or native speaker, they both do this in very different
ways. In audio-conferencing technologies, the communication can be two-way,
where learners can speak as well as listen, but until recently this could only be
done from a desktop computer without incurring prohibitive costs. In contrast,
an MP3 player is very convenient in that audio recordings can be listened to
almost anywhere without particularly causing irritation to people around, but
the recordings must be made in advance, and there is no interactivity in terms
of speaking to an interlocutor.

While technologies possess inherent affordances, the manifestation of these
affordances will differ depending on the user. The same technology used by
two people will not necessarily be used in the same way, and depending on

experience, skills, and knowledge of what the technology can do may lead to
very different results. To provide an example that keeps on the theme of listen-
ing, Windows Media Player is a commonly used technology for playing audio
or video media on computers. Most teachers would be quite familiar with the
functions of playing, pausing, or moving to a particular point in the media, but
it is likely that a considerably smaller proportion of teachers would know about
the function which allows the media to be slowed down or sped up (see Romeo
and Hubbard, 2010). Thus, for teachers with knowledge of this extra function
of Windows Media Player, the technology has an additional affordance than it
does for teachers who are not aware of it. Accordingly, the *actual* affordances
of a technology are the culmination of both the inherent affordances of the
technology and the user's depth of knowledge of the functions.

With advances in technological developments, it naturally follows that the
capabilities of computers and other devices will improve, and this will have
an effect on their affordances. Affordances of the latest laptop computers, for
example, are exponentially better than those of laptop computers just a decade
ago, in terms of speed, size, weight, and functionality. Where modems were
still often used for connecting to the Internet at that time, these days we have
wireless broadband, meaning that Internet access is not only faster and more
stable, but it can be accessed from a far wider range of locations. Many laptops
come complete with built-in microphones and video cameras, making video-
conferencing something that can be done wherever there is a quick Internet
connection, provided that the necessary software is installed (much of which is
now available for free). Even the traditional concept of a laptop itself has been
challenged by emerging technologies such as tablet computers that operate
through the use of a touch screen, smart mobile phones, and other Internet-
capable handheld devices that fit somewhere between these two. These allow
not only even more portability but also some additional features not available
on many laptops such as on-screen handwriting recognition, where writing
can bypass the need for any kind of keyboard at all. The implications of these
affordances are significant for their application in teaching and learning of lan-
guages as well.

While the affordances of technology have improved tremendously – and will
likely continue to do so in the future – we need to bear in mind common mis-
conceptions of technology suggested by Bax (2003), that a technology would
be inherently better if it had more features and that the mere existence of tech-
nology means that it will be successfully implemented into the curriculum. The
huge range of affordances of technologies means that it becomes increasingly
important to keep up with what these technologies are actually capable of to
avoid failing to capitalize upon potentially useful functions. In saying this,
however, care should be taken to not fall into the trap of assuming that the
existence of these affordances will make them better for learning in lieu of a

carefully designed curriculum that integrates the specific functions of technology to achieve particular learning goals.

CALL and learner autonomy

The concept of learner autonomy has received relatively constant attention in both CALL and non-CALL language learning literature over the past several decades. It is an important concept which has been defined as "the capacity to take charge of one's learning" (Benson, 2001, p. 8) or "experiencing oneself as the origin of one's behavior" (Dörnyei and Ushioda, 2011, p. 25). It is important to note here that self-study does not equate with autonomy. Self-study does not take into consideration the factors that lead learners to study by themselves, whereas for learning to be autonomous, learners must be able to seek out, recognize, and capitalize upon learning opportunities for themselves. Learner autonomy is often cited as an advantage of CALL, generally based on the fact that learners can work alone in their own time, but to assume that learner autonomy is a natural feature of CALL is somewhat naïve. Learner autonomy is a product of a range of factors including motivation, training, experience, culture, the educational environment, and social interactions with peers and teachers (Little and Dam, 1998; Benson, 2001; Blin, 2004). The link with motivation is no doubt a strong one (Dörnyei, 2001), but motivation itself is only related to learners' *willingness* to take responsibility for their learning, not the practical skills of *how* to actually go about undertaking the learning itself (Ushioda, 1996), and most learners will need training of some kind in order to be able to do this (see Chapter 3). Learner autonomy is a constantly changing condition that is manifest in different behaviors and, even if learners are autonomous in some aspects, it does not mean that they will be able to apply this autonomy to all areas of their learning (Schwienhorst, 2003).

While it is possible to provide activities through CALL that learners can undertake individually, engaging in CALL does not necessarily make them more autonomous (Benson, 2001), despite some of the claims that have been made in CALL research (Blin, 2004). Technology can provide opportunities for learners to work autonomously, but having access to this technology is no guarantee that they will actually do so. Certainly, learners are able to work autonomously using CALL, but only provided they have reached a sufficient level of autonomy that prompts them to take the initiative to learn of their own accord. In most cases, becoming autonomous is a gradual process that requires transitions from teacher-dependence to self-dependence and from fixed content to variable content (Healey, 1999). CALL materials that allow practice of a certain skill or area, then, could not be considered as enhancing learner autonomy unless they played a role in facilitating these transitions, rather than just being a source of activities that learners can undertake without teacher

supervision. Simply undertaking activities without teacher presence is not an indicator of autonomy. If, for example, students complete listening activities outside of class because they are required to have them done by the following class, this would unlikely be considered as autonomous, even though they were done without direct teacher supervision. If, however, students felt – of their own volition – that they wanted to improve their listening so decided to spend several hours completing the listening activities before the next class, this would be closer to what might be considered as autonomous learning.

Learner autonomy in CALL is complex, and certainly dependent on factors that reach far beyond the technology itself. Development of CALL materials that can support – or even contribute to – learner autonomy is not an impossibility, but it requires an understanding of these complexities at the design level. Studies investigating the factors which contribute to learner autonomy in CALL have identified both feedback and interactivity as key elements (e.g. Alm, 2006; Figura and Jarvis, 2007), as they allow learners to take stock of their progress and at the same time provide them with opportunities to use the language in a meaningful way, thus at the very least these must be considered in designing such materials. Finally, since some learners will have a natural tendency to take charge of their own learning compared with others, finding solutions that can cater to varied learner needs is indeed a challenging undertaking. These solutions may certainly include CALL, but with a realistic expectation of the role that CALL can play within the context in which it is used.

Use of the term "CALL"

There has been quite a lot of discussion recently on the appropriateness of the term "CALL" to describe the use of technology in second language teaching and learning. A number of acronyms have been used in the past several years, including CALL/CELL (computer-assisted/enhanced language learning), CASLA (computer-assisted second language acquisition), TALL/TELL (technology-assisted/enhanced language learning), NBLT (network-based language teaching), and, more recently, MALL (mobile-assisted language learning), to name a few. Why, then, has "CALL" been used for this book?

Deciding on an appropriate name for the field is hardly new, and periodically there have been attempts to rationalize the terms that are currently in use to determine what is best. One of the most convincing discussions on this topic is provided by Levy and Hubbard (2005), who give three main arguments in favor of using "CALL." Firstly, they argue that "CALL" may be used as an encompassing term, but point out that it does not mean that other terms cannot coexist. Due to the fact that, for the most part, other acronyms generally point