

## Qualitative research in CALL

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### Abstract

*This introduction to the Special Issue of the CALICO Journal positions research in Computer Assisted Language Learning (CALL) in the wider field of qualitative and quantitative approaches to research. It discusses the merits of the different approaches and links them to research paradigms that dominate the different subject areas constituting CALL research. The authors put forward arguments for the use of qualitative and mixed-method studies in CALL, claiming that not only the richness of data gathered through qualitative and mixed studies but also the epistemological stance of hermeneutic ‘understanding’ of the learner and learning can add descriptive breadth and theoretical depth to research and advance the field of CALL.*

KEYWORDS: CALL; MIXED METHODS; QUALITATIVE APPROACHES; QUALITATIVE METHODS

### Introduction

Qualitative approaches to research in CALL are pushing the boundaries of knowledge and promising new insights into how learners and teachers interact with technology. This development is set in a climate where tensions between positivist and non-positivist paradigms are influencing researchers’ decisions for or against the use of qualitative methods in their research. As Denzin (2009) points out, the field of education is being impelled towards quantitative methods and a (post-)positivist ontological stance through the adoption of criteria for ‘good research’ by research councils, institutions, funders,

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peer reviewers, and publishers. This special issue foregrounds the alternatives and showcases the importance of qualitative studies for the advancement of our field. Clearly, quantitative research has a significant contribution to make; there is little doubt about this in the CALL community. However, researchers have to be aware that selecting one particular form of research design is always an ideological choice. The fact that experimental designs and measurable outcomes are currently being favoured by institutions and funders makes them more powerful but not necessarily more 'true' in an epistemological sense. Denzin (2009: 153) uses the parable of the blind men and the elephant to explain how focusing on just one part of the big picture limits our understanding and can only ever lead to partial truths.

Scholars in second language learning have in recent years been pointing to the limitations of quantitative approaches in second language acquisition that are located in a (post-)positivist paradigm and favour methodologies that try to *explain* the differences between individual language learners or within individual learners by measuring the effect of certain variables. 'In our context of language teaching and learning, explanatory study concerned with accounting for variation and variability between language learners in the process of language learning remains a dominant approach' (Riazi & Candlin, 2014: 137). As researchers in applied linguistics in general and language teaching in particular we are sensitive to cultural influences not only on definitions of truth and knowledge but also on accepted and supported ways of knowledge generation. This experience of 'cultural relativism' can help our research to become more open, more varied, and – ultimately – more relevant. Leading researchers have been stressing the importance of sociocultural, constructivist and postmodern theories that employ qualitative methodologies or mixed approaches (combining qualitative and quantitative methods) to explore language use by trying to *understand* it in its particular ecological context (e.g. Block, 2003; Kramsch, 2003; Pennycook, 2010; Riazi & Candlin, 2014).

In contrast, research in computer-assisted language learning (CALL) is still dominated by studies that focus on the effectiveness of CALL in second language acquisition and often take a quantitative approach. This is reflected in the continuing interest in systematic reviews. Lin (2015), for example, presents eight meta-analyses of CALL done between 2003 and 2013; her own meta-synthesis (Lin, 2015) focuses on the effectiveness of CMC.

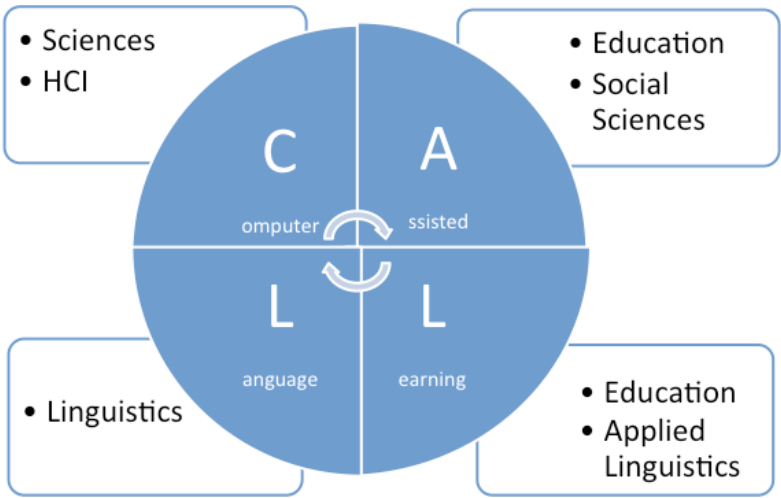
Instead of encouraging studies that rely on experimental set-ups, favour statistical procedures (such as pre-test–post-test measures), foreground reliability and validity, and stress replicability, this Special Issue of the *CALICO Journal* called for contributions which argue for qualitative or mixed-method approaches to researching learners' activities in CALL contexts. By bringing together a variety of scholars who have employed such methodologies, we

are attempting to raise the awareness of researchers regarding the rich data and the valuable insights that these approaches can generate when applied to aspects of language learning using new technologies. The articles included also highlight the rigour and trustworthiness of such approaches and explicitly discuss reasons for choosing one approach over another.

**The field of CALL research**

Computer Assisted Language Learning or CALL is both a challenging and a very fruitful area of research: challenging, because it lies at the intersection of different, at times competing, disciplines and research traditions. Fruitful, because it is fast developing and offers a rich field of easily available data that can be explored from a range of interdisciplinary perspectives.

As Figure 1 shows, CALL research is positioned in four different research fields.



**Figure 1:** CALL at the intersection of disciplines

The ‘computer’ element brings CALL into proximity with the sciences, particularly the field of HCI (human computer interaction). The ‘assisted’ part of CALL links into educational research or forms of social science research more widely (e.g. ethnography); the ‘language’ label connects CALL quite clearly with linguistics, and in combination with ‘learning’ it also relates to applied linguistics and – again – education research.

It is not surprising, then, that CALL research is characterized by and torn between very different research traditions, that is, science, social sciences and education. Whereas science and technology often prefer the quantitative,

experimental approach, education and applied linguistics introduce elements of qualitative and observational studies into the mix. The field of social sciences itself is divided between the adherents of more naturalistic, and hence non-interventionist, studies, and researchers using an objectifying stance and quantitative methods to analyse their data. Taking this fundamental diversity into account, the argument for using quantitative research methods exclusively contradicts the fundamental interdisciplinarity of the field: by reducing CALL research to just one of the perspectives favoured by one of the contributing disciplines, the field is short-changed in terms of its potential role in research and innovation.

What we find when we investigate online language learning will depend on which areas and which questions we explore. This is not to say that quantitative researchers disregard other aspects of language learning, however, in the context of limited resources – attention being one of them – research will produce findings most closely associated with the areas where most of these resources are placed. Taking a different perspective can help to highlight aspects hitherto neglected. Exploring alternative theoretical and methodological approaches allows researchers to investigate new and different aspects of online language learning and CALL.

If we consider how CALL and CALL research have developed historically, Warschauer's (1996) three stages of CALL are helpful. He sees the history of CALL as developing from behaviouristic to communicative to integrative approaches. In hindsight, this can also be linked to how CALL research has developed, that is, in line with technological innovation. With behaviouristic CALL focusing on drills, mainly around accuracy of reading and writing, experimental studies are commonly used which quantify learner behaviour and are informed by an underlying positivist ontology. Communicative CALL recognizes the importance of learners' interactions in order to improve communicative competence but promotes narrowly defined tasks which limit learners' agency. As fluency is a desired outcome, introspective methods gain more prominence that allow researchers to access learner strategies, beliefs, attitudes and perceptions. In integrative CALL authentic discourse in online social settings is key, giving rise to ecological approaches to research which focus on the experience of language learners in a natural, non-experimental environment. Other researchers have offered variations of this framework (Bax, 2003; Blake, 2008; Jung, 2005; Kern & Warschauer, 2000). More recently, CALL has moved to mobile and more informal contexts (Kukulski-Hulme & Shield, 2008; O'Dowd, 2003, 2006) and to a repurposing of technology (Conole, 2008), and the pedagogical focus has shifted to learner and teacher literacies (Cope & Kalantzis, 2009). In terms of research methodologies, user narratives (Barkhuizen, Benson, & Chik, 2013; Barkhuizen & Wette,

2008), semiotic approaches focusing on how language learners make meaning (Hampel, 2014) and online or virtual ethnography (Hine, 2008) offer unique insights into the experience of online linguistic environments and specific 'cultures-of-use' (Thorne, 2003).

In summary, research in CALL has developed from quantitative and experimental studies more suited to the (post-)positivist paradigm and the technology-focused CALL approaches of the early 1980s to a more ecological approach, encompassing qualitative methods and an often mixed methodology. The ecological and qualitative approaches attempt to capture learners' experience as they are engaging with CALL, resulting in richer descriptions, deeper understanding, and a more differentiated analysis of the environment.

### **What do we mean by qualitative research?**

Definitions of qualitative research are abundant and variously explain the ontological or epistemological foundations, the methods chosen to collect data, the approach to analysing data, or even the intentions and resulting actions of the research. Denzin & Lincoln (2008: 4) define qualitative research as follows:

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural setting, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them.

In our introduction to this Special Issue we use the term qualitative to mean an approach that favours understanding the subjective world of human experience over explaining objective reality and that may problematize social and political practice as part of their research agenda.

Historically there are good reasons why quantitative methodologies became prominent in the age of Enlightenment. They arose out of an attempt to avoid bias, fuelled on the one hand by the support for the 'rational' in the modern era and a fear of the irrational on the other, with philosophers moving away from metaphysics towards reason and towards a belief that the world is knowable. In a climate of massive political changes and upheaval, researchers had to base their claim for knowledge on something distinct from 'authority' or 'traditional wisdom'. The aim was that by using standardized measurement tools, quantitative researchers would be objective, measuring what happens rather than examining what research participants feel about what happens. This is done under standardised experimental conditions so research is replicable.



The power struggle for a more rational approach to knowledge generation is beautifully expressed in Goya's 'Sleep of Reason', which warns the viewer that a loss of reason inevitably results in chaos, irrationality and terror (see Figure 2).



**Figure 2:** Francisco Goya: 'The Sleep of Reason' produces monsters  
([http://en.wikipedia.org/wiki/The\\_Sleep\\_of\\_Reason\\_Produces\\_Monsters](http://en.wikipedia.org/wiki/The_Sleep_of_Reason_Produces_Monsters))

As a result of this shift towards positivist research since the Enlightenment period, methods of 'Verstehen' (understanding), empathy, and hermeneutics lost credibility even in areas where they might be well suited (for example learning), as well as in the areas where they were criticized, for example

physics. Nowadays, however, there is little doubt that both paradigms can contribute with equal merit to an advancement of knowledge if research is conducted rigorously and according to ethical standards. Rather than taking refuge in the seemingly safe but limiting domain of numbers, qualitative researchers need to ensure the value of their processes by taking account of certain criteria. For Hammersley (1990) these are the validity of research and its relevance; for Lincoln and Guba (1985) they are credibility, transferability, dependability and confirmability; for Denzin they are based on an understanding that 'ways of knowing are always already partial, moral and political' (Denzin, 2009: 154).

Qualitative research into language learning often has a non-experimental design and uses qualitative methods such as observation, interviews, or document research to collect non-numerical data. Although this kind of data can also be used for quantitative analysis, by assigning numerical values and using statistics to interpret the data, we will focus here on qualitative data analysis. This relies on a range of methods focusing on interpretation rather than explanation (Silverman, 2001) and ranging from phenomenological analysis (Pietkiewicz & Smith, 2014) to grounded theory (Glaser & Strauss, 1967) and narrative research (Barkhuizen *et al.*, 2013; Barkhuizen & Wette, 2008), amongst others.

As Hubbard (2009: 5) points out, 'qualitative and mixed-method studies are becoming increasingly common, especially in the area of computer mediated communication (CMC)' (see also Benson, Chik, Gao, Huang, & Wang, 2009; Jung, 2005; Kern, Ware, & Warschauer, 2004). So some researchers today prefer a qualitative approach to researching CALL – despite the common stereotypical view which still seems to be that quantitative methodologies provide the 'best' approaches to doing evidence-based and empirical research. Yet most qualitative studies are rigorous, systematic investigations with clear goals and a clear understanding of their and their research participants' roles in the process.

Online language learning is a multi-faceted and fast-changing activity that cannot easily be captured with one research approach. Exploratory approaches allow CALL researchers to study potentially new phenomena with an open mind, finding out what is happening before starting to measure how exactly a learner manages to use CMC tools, for example, microblogs, to gain a deeper understanding of the target language culture.

A number of arguments for why qualitative methodologies provide benefits to CALL researchers can be put forward. These are rooted in three different ontological stances which have an impact on how qualitative methods can be combined with quantitative methods in mixed-method approaches. The first claims that the quality of data collected improves, the second is based around

the fit of methods to the field, and the third takes a deliberately political stance and claims that qualitative research has the potential to make a difference.

First, from a positivist perspective qualitative methods can be positioned within a mixed-method approach. Here researchers claim that research data collected in this way are potentially richer, more attuned to the developing and changing nature of the topic under scrutiny, and potentially offer insights of a depth that purely quantitative investigations of the same phenomenon could not provide. One way of using a combination of qualitative and quantitative data is for triangulation. Thus, where a mixed-method design is based on a dominant quantitative approach, using a (post-)positivist perspective, qualitative methods can enhance findings without changing the nature or the thrust of the research.

Second, some qualitative researchers insist that the ‘understanding’ provided by qualitative methodology is – in principle – of a different type to the ‘explaining’ that a quantitative paradigm aims for. Under this hermeneutic or phenomenological perspective, quantitative methods can only be ‘mixed in’ with the predominantly qualitative design as an addition, to help with specific tasks, for example, to guide the initial selection of a suitable research setting or to collect biographical data.

A third argument for choosing a qualitative or mixed methodology over a purely quantitative approach relates to the purpose of a particular study. If the desired outcome is more practical and pedagogic rather than an advancement of pure knowledge, the methods chosen (e.g. action research) will be informed by a critical paradigm. Underlying this approach is a dialectical materialist philosophy which places research as one human activity in a context of political and power structures where the ‘purity of knowledge’ does not exist and cannot be achieved. Onwuegbuzie and Frels (2013) give a comprehensive overview of the different options for mixed research and provide arguments for choosing a mixed methodology in a critical and participant-focused way.

In order to situate these arguments philosophically, the next section will consider qualitative and mixed-method research paradigms in different ontological frameworks.

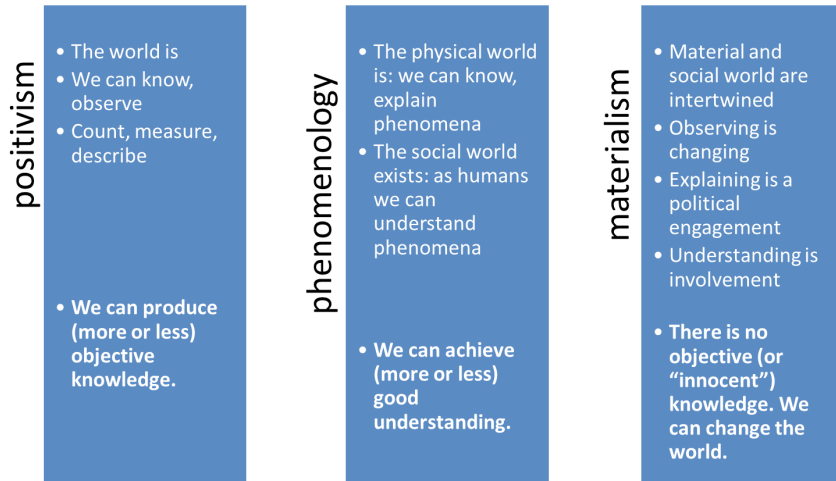
## Qualitative research paradigms in context

How reality is understood is defined differently by several main ontologies (see Figure 3):

- positivism and post-positivism, which posit that the world ‘is’ and that there is an objective reality which we can know through empirical study;



- phenomenology, with its belief that we can know, explain and understand phenomena [*Erscheinungen*], and its focus on persons and their experience and consciousness;
- cultural-historical and postmodernist theories (including activity theory, ecological approaches, or complexity theory), which negate an objective reality and see the material and the social world as intertwined.



**Figure 3:** Three main ontologies

These constructs have been developing historically over time, with new ontologies trying to offer a more appropriate explanation of the world than previous ones; however, they also co-exist, with theorists and researchers vying with one another about the 'truth'. Denzin & Lincoln (2008: 1) give a useful summary of the history of the so-called paradigm wars:

[Teddle and Tashakkori] expand the time frame of the 1980s war to embrace at least three paradigm wars, or periods of conflict: the postpositivist-constructivist war against positivism (1970–1990); the conflict between competing postpositivist, constructivist, and critical theory paradigms (1990–2005); and the current conflict between evidence-based methodologists and the mixed methods, interpretive, and critical theory schools (2005–present).

Some researchers would argue that it is impossible to bring together these approaches as they reflect very different worldviews, both in terms of epistemology and ontology. However, others believe in a more pragmatic approach, bringing together quantitative and qualitative perspectives to create a mixed-method approach. In this context, qualitative studies can balance and supple-

ment findings from quantitative research; they allow researchers to identify as yet under-researched areas, point to open questions in the field that would benefit from being investigated with the help of large-scale quantitative surveys or a controlled experimental studies. On the other hand, quantitative surveys can serve as a valuable starting-point for a qualitative in-depth study.

## **The application of qualitative and mixed-method approaches to CALL**

Different ontological stances have impacted upon our understanding of learning. This has developed from a transmission approach (which sees the brain as an empty box that is filled by the teacher), to a focus on the concrete, situated experience and understanding learning as a process that the individual undergoes (involving cognition but also emotions and one's body), to sociocultural theories of learning. The latter link learning and mental processes generally to the cultural, historical, and institutional settings (Wertsch, 1991) and argue that mental functioning is mediated by cultural artefacts, activities, and concepts (Lantolf & Thorne, 2007).

In turn, these different understandings of learning are reflected in the field of second language acquisition (SLA) which has evolved from seeing learning as mainly a mental process to recognizing that it is a complex social activity, and from a focus on individuals' learning gains resulting from discrete treatment to a focus on learning as an ecological process that is socially situated and constitutive of identity. This has been termed as the 'social turn' in SLA (Block, 2003). Instead of measuring the progress of individual learners in an experimental study with the help of a pre-test–post-test approach and associating results with the success or failure of a particular treatment, many researchers favour examining learners in their context, and they use different methodologies that take account of the subjective human experience and the social and political practice. However, as mentioned earlier, mixed methods can provide a 'third way' for research in language learning and teaching.

## **Developments in CALL research**

So what are CALL researchers investigating? And what research methods are they using? This special issue responds to questions raised about 'what students are actually doing' in CALL (Fischer, 2007) and extends this to the related question: 'And how do we know this'? It also links in with the call, from other researchers, to reorient research on CALL to consider 'technological settings as artefacts and as mediators, rather than determiners, of action and interaction' (O'Rourke, 2005: 435). The resulting papers show a richness of different contexts in which CALL is used and a variety of approaches to CALL research in terms of scope, methodologies and methods.

The papers in this special issue are all exemplars of making a deliberate choice. This resonates with Schulze and Smith's (2015: ii) call for authors and scholars to improve the research base in CALL by locating their research in relation to a particular ontology, epistemology and methodology. Thus the authors in this Special Issue share with us their reasons for selecting a qualitative or mixed-method approach in a naturalistic setting over an experimental or quantitative design. They discuss the benefits of their choice for their particular purpose and argue that without their choices, this advance of knowledge, understanding, and practice in our field would not have been possible. The variety of reasons for choosing a qualitative or mixed approach shows that a deeper and more systematic understanding of the underlying principles is highly desirable for any researcher interested in the field. Rather than choosing methods at random or on a convenience basis, researchers need to be aware of how their choices are linked to underlying philosophies, how they will influence the credibility of their findings and the reception of their research in different contexts, and how their position in a community of researchers that is fast moving and – above all – highly innovative, will be defined by their deliberate and reflected choices of methodology.

This collection is timely and necessary, and the individual contributions exemplify the risk some researchers take to extend our field – not all the projects could rely on a successful outcome and guaranteed publishable findings from the outset. Taken together they make an excellent case for a considered and informed choice of qualitative method, and presenting them in context will give other researchers a solid overview of what is currently happening on the qualitative side of CALL research.

Teachers and their pathways into CALL are the focus of more than one article in this special issue. The first article shows how a qualitative approach can add depth as well as a historical dimension to research in second language teacher education and the use of CALL. Keiko Kitade employs sociocultural theory in general and activity theory in particular to show the transformation in the cognition and practice of two teachers of Japanese as a foreign language. Her narrative inquiry follows the Trajectory Equifinality Approach in order to explore the teachers' life trajectories. This particular method highlights how the social nature of technology has influenced not only the teachers' use of ICT but also their role in the community.

Whereas Kitade explores the development of two teachers of Japanese, the second article by Derya Kulavuz-Onal reflects on her own development as a CALL practitioner through a participatory study. She illustrates how netnography (which has also been called online ethnography, see e.g. Androutsopoulos 2008) as a method can enhance our understanding of a particular online language teaching community. She reflects on her participation in this online

community of practice, considering the opportunities and the challenges of an ethnographic approach in an online setting. Whereas in a positivist framework the researcher might have exploited the ease of collecting data online and limited her-/himself to a quantitative analysis, Kulavuz-Onal's contribution highlights the participants' experiences and the responsibility and engagement of the ethnographer.

In another participatory study, Lara Wallace introduces reflexive photography to understand the use of ICT among International Teaching Assistants (ITAs). Her interpretation is based on the epistemological stance that every action is meaningful (Schwandt, 2000). By engaging her participants in photographing objects and people that impact on the development of their spoken English and discussing the images with the ITAs, she succeeds in highlighting the agency of the participants and the potential benefits they derive from their actions. Reflexive photography is a promising visual method not only for teachers and language learners but also for qualitative researchers aiming to reflect on their engagement in the field.

While the first three papers focus on teachers, the next three investigate language learners in different contexts. Positioned at the interface between human computer interaction and distance education, Müge Satar examines social presence in multimodal synchronous computer-mediated communication. She observes learners of English communicating via videoconferencing and uses multiple data sources to create a framework of factors influencing the sustainability of online interactions in the second language. Her qualitative study foregrounds the voice of the participants, allowing an in-depth understanding of social presence as constructed by them.

Whereas the innovative aspect in Satar's article consists of the introduction of social presence – a relatively recent concept – into language learning via video conferencing, Julie-Ann Bytheway's contribution takes a more widely researched aspect of language learning and examines it in an innovative context. She examines learners' strategy use in massively multiplayer online role-playing games (MMORPGs) in a naturalistic setting. Her mixed-method approach adds depth to the research field of vocabulary learning, an area of second language acquisition that traditionally has been characterized by quantitative research. In choosing to study an environment where learners participate for reasons other than language learning, she identifies a different balance in the learners' use of strategies.

The next article presents a conscious challenge to a purely quantitative approach. Framed by an ecological and task-based perspective on language learning in a virtual world, Aurore Mroz investigates the development of critical thinking of language learners. Not satisfied with the information provided by purely quantitative data, she adds layers of qualitative data to the

computer-generated logs to provide depth to her findings. Her study shows the importance of qualitative research for exploring the larger question of meaning making in a second language.

Going beyond the single-study approach, Mike Levy takes a wider perspective on qualitative and mixed-method studies that can enhance the field. He describes examples of mixed-method approaches that firmly focus on learner experience. He describes CALL as a field for research that can benefit from a qualitative orientation fitting with the naturalistic setting of learning in online environments as well as from the use of quantitative methods. Finally he proposes not a single mixed-method study but a series of studies, quantitative, qualitative and mixed, to examine the learner experience.

The last part of this special issue is Marta González-Lloret's review of the use of conversation analysis (CA) in the study of computer-mediated interactions in CALL. This qualitative method is a relatively new addition to the toolkit that the CALL researcher can employ. After reviewing the literature González-Lloret discusses the challenges of implementing CA in CALL and the potential future of this method for CALL. This special issue is rounded off with a review by Marti Quixal of the book *Technology-Mediated TBLT: Researching Technology and Tasks* by Marta González-Lloret and Lourdes Ortega and learning technology reviews of *Hello-Hello – Language on the go!* and *Google Glass* by Doris Torres and David Forinash, respectively.

We thank all authors for their innovative contributions and are confident that the Special Issue will stimulate discussion about (1) the criteria used to evaluate research in CALL, (2) the increasing importance placed on understanding the learner's perspective (giving learners a voice) and focusing on the learning process and on the context in which learning takes place, rather than purely on the product, and (3) the shift from explaining to understanding entailed in moving from quantitative to more qualitatively oriented research. In a wider sense, the Special Issue will illustrate how qualitative and mixed-method approaches can deepen the insights generated by more traditionally used quantitative methodologies and contribute to creating a more balanced research landscape in CALL. By bravely stepping outside the well-trodden paths of experimental or quantitative research designs locked in a (post-)positivist ontology, our contributors are helping to challenge set views, and to advance not only the understanding of CALL as a learning format but also our options for improving the ways we can support meaning-making in online environments.

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