This special issue of the Arab World English Journal focuses on Computer-Assisted Language Learning: innovative uses of ICT, impact and modes of integration in the classroom. Referring to acronyms such as ICT or CALL, or generic terms such as “technology” or “computers”, seems to point to a well-identified area of research and practice in education. Yet, this terminology may well be the cause of an ontological illusion leading readers of the scientific literature to think that CALL is a unified field and that the results of research may therefore be valid for any situation.

Yet, such a unified or holistic perspective, which could provide language teachers with a sound basis for the development of learning environments, is challenged by a common characteristic of the social sciences, i.e. the difficulty – if not the impossibility – to offer generalizations and rules.

The title of this special issue, “New approaches to CALL”, is meant to stress the plurality which proves to be the rule in the field, as shown in the title of Stockwell’s 2012 book which reads Computer-Assisted Language Learning – Diversity in Research and Practice. The articles published in the present issue illustrate what is certainly the most important – and often under-emphasized – feature of the field. First, as pointed out by Levy & Stockwell (2006), this selection of papers demonstrates the fact that CALL is “heavily dependent on context” (p. 12): the studies published here are firmly grounded in a variety of geographical contexts – comprising
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five different countries (Saudi Arabia, Lebanon, Iran, Palestine and Malaysia) – as well as in various institutional contexts ranging from Primary education to Tertiary education, thus covering all levels of the educational spectrum. In addition, the technologies under study are equally as varied as they include new types of mass media, the Internet as an environment for developing reading skills and for completing webquests, e-learning systems and faculty websites, computer-mediated communication (voice and text chat) and specific software to develop reading skills (Rocket Reader). Besides, in terms of objectives, the selected studies investigate the integration of CALL from a variety of pedagogical perspectives: the development of reading skills, writing skills, speaking skills and media literacy. Finally, the papers include both review and research articles reporting on studies which make use of multiple methods as they draw on quantitative and/or qualitative analyses from tests, questionnaires and/or interviews.

In “Media awareness for pedagogical evolutions”, M.W. Lidawan explores the place of media education in language learning as technology has given rise to new “multi-media” which require specific training. The author suggests that media literacy is a component of communicative competence alongside language skills. In the same vein, in their review article entitled “In the light of reading strategies comprehension development”, A. Al-Momani, S. Hussin and A. Hamat explore previously published research on reading comprehension and, more specifically, on the differences in reading strategies between print-based and online reading (i.e. reading off the Internet). They conclude that language learners need to be taught how to process online information.

“The Effectiveness of CALL in the Palestinian Context”, by A. D. A. Al-Ayyouby and M. Abdel-Hakim Farrah, investigates the effect of CALL on achievement in reading and attitudes as well as the effect of gender on the achievement or attitude in using CALL. They show how EFL learners’ achievements and attitudes are positively influenced by CALL while gender does not play any significant part.

El-Sadig Y. Ezza and Summaya A. Bakry (“Technology-enhanced Instruction in a Saudi EFL Classroom”) assess the students' reaction to the integration of technology into the traditional EFL classroom. Their contribution is based on the study of the introduction into their institutions of three web-based systems to perform a variety of academic transactions: an e-learning system, a system to control students' registration, timetables and exam results and the faculty websites where course materials are posted. The authors show how these technologies help the learners develop responsibility in their own learning both inside and outside the classroom.

G. Awada and G. Ghaith investigate the effect of using WebQuests on EFL writing achievement and comprehension. They compare the use of this tool with regular process writing instruction and conclude that information should be used instead of simply looked for, which implies the development of critical thinking.
N. Sarkheil and M. Azarnoosh come with similar conclusions in “Computer Mediated Communication Voice & Text Chat: Iranian EFL Teachers’ and Students’ Attitudes and Motivation” as regards Computer-Mediated Communication. CMC provides ample room for instant interaction and voice/text-based communication, a capacity which is shown to advocate authentic interaction among learners, provided teachers and students develop positive attitudes and motivation towards it and are aware of its promises and challenges. In this study, the overall perception of CMC use by both teachers and learners was positive.

**Considering CALL from a researcher’s perspective**

If we consider this special issue from a researcher’s perspective, trying to understand the processes at work in CALL situations, we cannot avoid raising the initial question of whether or not CALL is a unified field, in spite of the wide range of areas covered and the many theories and disciplines it draws from (Hubbard 2009). A scientific field is usually defined in relation to an identifiable object on the one hand, to specific methods on the other hand.

- The object under scrutiny in the various articles of this special issue can be identified as “the digital technology”, observed from such various angles as the computer artifact, the multimedia nature of information, networking and the Internet through the uses of Webquests and CMC. Let us also note that some authors do not mention any specific application and make general references to either “CALL” (Al-Ayyouby & Farrah) or “technology” (Ezza & Bakry).

- As far as research methods are concerned, the present articles show how the traditional debate between quantitative and qualitative methods seems to give way to the need to combine them in an effort to provide some kind of triangulation of data. If quantitative studies certainly dominated in the early CALL literature (Hubbard 2009), qualitative and mixed-method studies are now more common as illustrated in this issue. Indeed, most of the authors whose works are presented here show an effort to counterbalance the lack of statistical validity of their individual – and limited – context (quantitative questionnaires) by a qualitative perspective (through interviews mostly).

If we keep in mind the multiplicity of contexts illustrated in this issue, CALL can be described as a unified field only from a “wide angle” perspective, which raises new questions as to the possible generalizations one can make from each individual study. It would therefore be more accurate to refer to a multiplicity of approaches to CALL, hence the title given to this special issue.

**Considering CALL from a teacher’s perspective**

The teacher’s perspective differs from the researcher’s insofar as the former focuses on the efficiency of the teaching activity rather than on the scientific explanation of processes. Which lessons can be drawn from the variety of practices described here?

First and perhaps foremost, Awada & Ghaith remind us of the necessity to develop practices inspired from Second-Language Acquisition theories: while the teacher’s intuition may be of help in everyday situations, the efficient introduction of any technology in the language...
classroom can only be guaranteed by theory which should therefore always play a central part in CALL research, design and integration. In this way, many researchers and practitioners regularly advocate principled CALL research and practice (Sarré 2013). Obviously, one could argue that language learning is characterized by the absence of a global theory which could predict acquisition. However, today’s teachers and CALL designers can have insights into the processes at work through widely accepted theories deriving from (socio)constructivism and cognitivism. An awareness of this conceptual framework seems to be a minimum requirement for CALL activities development.

Another type of answers which teachers might expect from research is linked to the impact of the various technologies available on acquisition processes in relation to specific pedagogical objectives. The authors in this issue agree on the existence of significant changes emerging from CALL situations.

Sarkheil and Azarnoosh show how CMC guarantees authentic input and interactions. Al-Ayyoubi & Farrah point to new attitudes from learners due to increased motivation and less anxiety when confronted to the L2. Ezza & Bakry insist on the supporting role of the technology in individual learning capacity and on the development of what Kelly (2005) called the learner’s “epistemological responsibility”.

Lidawan’s study points to the need for media literacy both on the teacher’s and learners’ parts prior to any integration of the technology into the classroom. In a similar vein, Awada & Ghaith raise what we might call the “ethical” question of developing a critical eye when preparing to interact with digital information and media. In addition, the impact of technology on classroom-based practice is also illustrated in some of the articles: Lidawan, for example, claims that the emergence of new (multi-)media has strengthened the need for students to “learn to use media resources critically and thoughtfully”, thus pointing to the direct impact of technology on traditional classroom-based practice. In this respect, technology can be considered as an impetus to question traditional face-to-face practice, which justifies a systemic (i.e. drawn from Dynamic Systems Theory) perspective.

Still, teachers also look to researchers for practical guidelines on how to use/integrate technology in their practice. In this respect, one way of looking at things is to try and distinguish between what might be referred to as “established CALL” and “emergent CALL” (Levy & Stockwell 2006: 239), or, simply put, the use of CALL on the one hand and its full integration on the other hand. Indeed, if CALL products and tools certainly vary in their sophistication (the Internet as a source of reading texts vs Rocket Reader or voice chat tools), the way they are actually used/integrated should also be questioned. Although this point is directly affected by the many constraints technology users – i.e. the teachers here – are faced with (technology skills, interests, time available, etc.), teachers can benefit from different conceptualizations of the integration of technology in education, such as the four-step SAMR (Substitution-Augmentation-Modification-
Redefinition) model (Puenteura 2006) which can serve as both a set of guidelines to question their integration of technology and a progression to follow: from the very basic Substitution of traditional tools by technology to perform the exact same tasks, teachers can use technology for Augmentation purposes (i.e. technology is a tool substitute with functional improvement); alternatively, technology can be given greater added value when its introduction is seen as a Modification which allows for significant task redesign or, at the end of the integration scale, when it leads to a complete Redefinition of practices with the creation of new tasks which were inconceivable before. In this respect, the studies featured in this special issue illustrate different degrees of integration of technology: from the simple substitution of printed texts by the Internet for reading purposes in Al-Momani, Hussin & Hamat’s paper to modification in Jarkheil’s study through the integration of CMC and the subsequent task redesign, and to clear redefinition in Awada & Ghaith’s paper in which Webquests are new tasks that could not have been implemented beforehand as they are defined as “inquiry-oriented activities in which most, or all of the information used by learners, is drawn from the Web”.

In any case, one should bear in mind that, on a continuum, “integrated CALL” is claimed to be the future of CALL (Bax 2003), the ultimate step in this integration being “CALL normalization”, i.e. a stage when technology becomes invisible due to its full integration into practice.

**Conclusion**

How to suggest a conclusion to the large panel of situations described in this special issue? What common conceptual framework can emerge from this varied landscape, which can offer both teachers and researchers safe ground for didactic thinking and CALL environments design?

Our temptation, as editors of this issue, might be to refer back to the identification of “invariants” and the construction of models such as the one previously presented in this Journal by (Bertin 2011). The heuristic nature of such models can help develop a “simplex” (Berthoz 2009) approach to CALL situations, i.e. a way to form simple representations of the complexity inherent in such environments. By figuring the various components of the dynamic system constituted by any CALL situation, the model provides a way for the various actors to remain aware of all interactions at work as well as of the theoretical background against which the environment is organized. Referring to the model may therefore help raise questions which help guarantee the global efficiency of CALL (Bertin 2013, 2014).

As technology has now become more and more present in our everyday lives and permeated many aspects of education, including language learning and teaching, the central question is not to know whether it should be used but rather how to use it effectively. We therefore cannot insist too much on the importance of theory and research in the integration of technology in language learning and teaching, which makes for principled CALL. This is precisely why the researchers and practitioners whose works are published in this issue have an important part to play as they
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