CALL in Limited Technology Contexts

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Edited by Joy Egbert

Contents

Preface

Much has been written about how to use computers and other electronic technologies in the teaching of English. This book, also, is ultimately about effective technology use in language learning environments. However, rather than focus on the newest and best computer-assisted language learning (CALL) technologies as many other texts do, this book demonstrates both how to make do with what is available and how to find, obtain, and use additional resources. With the field's current focus on cutting edge technologies and techniques, the lack of literature addressing the needs of the majority of US and international language educators who do not all have the same ways and means is a major oversight. The main theme is that effective CALL can take place regardless of the specific technologies and other resources that are available.

This book addresses limited technology contexts from the viewpoint of those who are actually experiencing them in various parts of the world—including the US—while also suggesting effective practices for educators in other areas who are experiencing the same limitations. The book is intended as a resource for teachers and administrators in countries around the world at all levels of language education (K-adult, cram school, university, etc.) and as a foundation for students in language and CALL education programs who are looking for ways to address limited technology contexts effectively.

For ease of reading and access, the chapters in this volume follow a similar format; although subtitles vary, each chapter includes

1. introduction with a scenario compiled from real experiences or created as an exemplar,
2. context (short description of the issues),
3. background (research, history, and/or examples),
4. possible solutions,
5. practical application (examples), and
6. adaptations to other contexts.

The chapters are grouped around the basic issue being addressed, although each chapter typically focuses on more than one limitation. Problems and solutions may overlap among chapters, but each author addresses the limitations found in his/her context. Each chapter also contains a balance between theoretical/empirical and practical information. Our intention is to ground CALL practice in relevant theory and research.

The stories, theories, and examples in this volume may not address the exact situations in which individual educators find themselves. We hope, however, that the contents of this book will provide inspiration for working toward effective language learning and teaching experiences in contexts worldwide.

Chapter 20

Shifting Sands, Shifting Paradigms: Challenges to Developing 21st Century Learning Skills in the United Arab Emirates

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1. Context

Many educators are hit with a 'double whammy' with regard to overcoming challenges of utilizing technology in their teaching situations. Educators throughout the world are hobbled by lack of funding for technology, yet that is just the first hurdle. If funding were available and the latest technology tools for teaching and learning were placed at their fingertips, they might still be hard pressed to use the technology appropriately. Using high-tech resources effectively as tools for learning requires not only experience with the tools themselves—which cannot be gained until the tools are available—but in many cases means re-thinking how people learn most productively and how technology can leverage those processes.

As can be seen from many of the other chapters in this book (e.g., chapters 16 and 17), the authors of those chapters (Marandi and Fawzi) are sometimes among the few advocates of educational technology in their particular educational settings. That is, it seems that the majority of teachers in these settings feel that technology is not relevant to them and that to accommodate it would impose burdens on them that they are reluctant to shoulder without direct compensation. In other words, they have little time in busy teaching days to devote to technologically related professional development, and they do not know where to begin to start learning about technology. Where technology is limited, access to the latest thinking on deployment of that technology is also typically limited (e.g., see Dalha, this volume), so even in conceiving what to do with technology once it arrives, there

are limited resources for training and advice in addition to reliance on outdated literature and methodologies. The result is that when computers are set in place, they might be used inefficiently, underutilized, or in some cases even unutilized.

As a case in point, the education sector in the United Arab Emirates (UAE) is awash with the latest technology. However, access to technology does not lead automatically to its being utilized to its full potential (see Allan, 2009, reporting a similar situation in Qatar). A prime reason for this is that educators with learning experiences and attitudes rooted in the 20th century are only slowly making the paradigm shifts required to adapt appropriately to the 21st century. This is true in schools all over the world, but the problem is endemic in the UAE because the system of education there, though continually improving, has only recently developed approaches to learning that engage students through technology. These approaches are set against a tradition of rote learning, memorization, and knowledge being passed one-way from teacher to students that dominates pedagogy in the region; the result is that students entering universities in the UAE enter technology-rich environments without the critical thinking skills and curiosity for discovery through experimentation and research that has to a greater extent been nurtured in students in western countries well before they leave secondary school.

However, for students to acquire 21st century learning and critical-thinking skills, they need models to show them the way. Here we encounter an additional problem. Their teachers do not model these skills for them because by and large they are not themselves proficient in the most current technologies; for example, using social networking as a means of extending their professional development. Yet the importance of this is becoming clear, as for example, in a study by a Committee of Inquiry at the Joint Information Systems Committee (2009) which includes in its findings that

- Using Web 2.0 technologies leads to development of a new sense of communities of interest and networks ... for example ... group space (social networking sites such as Facebook)
- There is an area within the boundaries of the so-called group space that could be developed to support learning and teaching
- The processes of engaging with Web 2.0 technologies develop a skill set that matches both to views on 21st-century learning skills and to those on 21st-century employability skills—communication, collaboration, creativity, leadership and technology proficiency. (p. 6)

Among the teachers in the UAE (and this is not especially unique to the UAE), the majority are what Prensky (2001) calls digital immigrants, teachers slightly uncomfortable and out of synch with the most recent and most transformational uses of technology. They do not, for example, use the interactive whiteboards installed in many of their classrooms, and, when they do use them, it is often to lecture. (Prensky says that such teachers should not be allowed to use interactive white boards. These should be in the hands of students; Stevens, 2009a.)

Although this is typical of many teaching situations throughout the world, an additional challenge in the UAE context is that students do not generally demand that their teachers use technology, and many may in fact resist it. This, in turn, leads some teachers to avoid introducing technology into their lessons, arguing that it is not compatible with the learning styles of their students. However, if one adheres to Downes's (2007) characterization of teaching being to model and demonstrate, this might be construed as an abrogation of responsibility. The role of the teacher should be to take the lead in showing the best ways to apply new technologies to learning. However, as many teachers themselves do not typically utilize the newest technologies and may be even unaware of them, they are therefore unable to model or demonstrate how their students can use them to leverage their opportunities for access to knowledge.

An additional problem particular to the UAE context is that until only recently social networking sites were generally blocked at the country-wide proxy server. Sites on the banned list included Twitter, Ning, Skype, and Flickr. This fed a general perception in the UAE that there was something deleterious about these sites and hence about social networking in general. Nowadays, the official stance is more enlightened. Twitter and Ning are permitted unhindered. Skype can be used on computers on which the client program has already been installed. The UAE firewall still prevents access to the Skype website (http://skype.com), but the computer-to-computer use of Skype is no longer blocked. At the present writing, visits to Flickr (http://flickr.com) are still prohibited in the UAE.

In the UAE students and educators can often take for granted generous access to technology. At the tertiary level one can expect computers in every office and classroom supported by a well staffed IT department maintaining a robust LAN with fast internet connection and access to many networked resources such as printers, email, and learning management systems. Further, there are few constraints on their use apart from restrictions on bandwidth-intensive downloads and telephony. In addition, one can expect a sophisticated level of users in possession of basic technology skills such as file management, email, word processing, presentation, and simple troubleshooting. The human bottlenecks become more pronounced in general lack of understanding of the new literacies and social networking with their associated impact on how people share, collaborate, search, bookmark, connect with knowledge, and develop their personal learning networks (PLNs) in the new millennium. Of course, when these crucial 21st century literacy skills are not widely understood by educators, they are not integrated into the curriculum, and the educational system in general clings to modes of learning that are vestiges of a worldview with ever decreasing relevance to the future; hence it does not truly prepare young people to take their place in the modern, fast-evolving society and workplace.

The challenge therefore is how to bring about changes to curriculum that will provide students with the skills they need to be productive in approaching future settings in which few of their teachers possess these skills themselves. This chapter will focus on a set of materials designed to introduce not only students to a few key concepts for the new age, but their teachers as well.

2. Background

I am an early adopter of social networking tools for professional development and had been subtly modeling use of them to colleagues I work with in person for years when I was finally asked to conceive of a plan at our institute to match the use of educational technology with good pedagogy. This request spurred my thinking about how to preach to someone other than the choir about how to effect change at an educational institute where there is not a lot of awareness of the very latest issues in educational technology and their impact on learning. The ball has only just started rolling, how could I nudge it up the hill?

The basic premise here involves a shift in how learning is viewed in the current century as opposed to the one past. In the last century, educators conceived of themselves as sources of knowledge for their students, and people with degrees were regarded as being in possession of that knowledge. This may be true to some extent; a degree from an institute of higher learning is one measure of what a person knows. But in the 21st century, cultivating and maintaining access to knowledge-bases may prove to be a more important skill, especially in a world where development is so rampant that the knowledge required to keep current and competitive cannot possibly all have been learned in college. As Siemens (2005) puts it, "the pipe is more important than the content within the pipe" (n.p.) —where the 'pipe' is a set of network connections.

I have been developing a list of 10 paradigm shifts that educators must make in order for them and their students to successfully adapt to changes in literacy in the new era.

1. Pedagogy
    Educators must shift from didactic models of "teaching" to constructivist models emphasizing "learning."

2. Networking
    Educators need to move from regarding learning as an isolated activity, as assumed by Ryerson University, for example, when it accused a student of cheating for forming a study group on Facebook (http://www.thestar.com/News/GTA/article/309855) to connectivist models along the lines of communities of practice and personal/distributed learning networks.

3. Literacy
    Literacy is moving from dominance of print media in the last century and tending toward multiliteracy approaches that better accommodate how people articulate and communicate when a plethora of digital tools and connectivities are available.

4. Heuristics
    The most productive models of organizing learning are moving from top-down client-server relationships between repositories and seekers of information to peer-to-peer models in which those with knowledge and those seeking it treat each other equally, often reversing roles as seekers and providers of knowledge.

5. Formality

The degree of formality in education is moving from power-centric models with traditionally defined roles to much more informal models in which fear of being exposed as not knowing is replaced by encouragement of exploration and discovery by all involved in the learning process. This increases the chances that frivolous unanticipated nonsense (F.U.N.) will enter the learning process, as opposed to its being driven by a set of activities with predictable outcomes.

6. Transfer

Transfer refers to the means by which knowledge is shared and implies that educators avoid lecture modes (where students 'sit and get') in favor of modes in which experts move off center stage in favor of learners (to become a guide on the side, returning only to model and demonstrate).

7. Directionality

Directionality of knowledge transfer is trending from 'push' systems (e.g., email) in which content providers (including spammers, advertisers, and office wags pushing cute attachments) control what comes your way to 'pull' systems such as those using tagging and RSS to aggregate what *recipients* request to see on demand.

8. Ownership

Ownership is changing from the proprietary models prevalent toward the end of last century (e.g., Microsoft Windows and Office; Blackboard, Sound Forge, and Camtasia) to open source models (e.g., Linux, Open Office, and Moodle), greater availability of freeware (e.g., Audacity, Camstudio, and uTIPu), and the ascendancy of open educational resources.

9. Sharing

Educators view copyright not as something that limits the use of intellectual property but along the lines of the creative commons model, which allows content to be shared and remixed within parameters that credit its creators and specify fair use.

10. Classification

Classification of learning objects, websites, bookmarks, photos, music, and even filing of email is moving from taxonomic models to folksonomic ones in which the most effective systems for organization and subsequent recall are not fixed and preordained systems (taxonomies) but systems in which stored objects are categorized by multiple users who simply tag them on the fly and so invent organic, flexible systems of retrieval (folksonomies) that would otherwise be chaotically stored in 'the cloud' and unmanageably irretrievable in a taxonomic system.

Keeping in mind these desired shifts in thinking, I proposed a baker's dozen of representative concepts, tools, and genres for the materials I would prepare,

which I think have tremendous potential to impact learning for users who have realized the paradigm shifts noted above. Without some awareness of these shifts, the transformational uses of many of these tools in promoting learning might be improperly understood in general (not just in the UAE). However, I feel that familiarity with the following technologies will help shape that awareness and become crucial to our students as they enter the workforce as "knowledge workers" (Cross, 2007). Their success in their respective fields will hinge more and more on the efficiency with which they seek and access knowledge and manage projects through collaboration in teams and less formal professional communities encountered in the course of productive, life-long learning. Accordingly, in developing new literacy materials aimed at modern-day students and their teachers, I tried to touch on the following topics:

1. Web 2.0 and social networking;
2. RSS and feed readers;
3. Podcasts (harvesting them, as examples of application of RSS, but also producing them as vital resources in ongoing learning and professional development);
4. Blogging, both for multiliteracy skills and as further illustration of RSS;
5. Microblogging (e.g., Twitter) and PLNs;
6. Push/pull technologies;
7. Aggregation via folksonomic classification systems as opposed to taxonomic ones;
8. Digital storytelling and applications of multimedia to new literacies;
9. Distributed learning networks—communities (of practice) and connectivism;
10. Informal, just-in-time learning;
11. Synchronous communications—instant messaging, online presentation venues incorporating interactive whiteboard, voice, and video; and
12. Asynchronous collaboration tools—blogs, wikis, Voicethread, Slideshare, Google docs, and similar collaboration tools.

Many of these items overlap and impinge on other items in the list; for example, RSS is a major feature of blogs, yet both topics warrant treatment separately. The concept of blogging could accordingly stand alone apart from the other asynchronous collaboration media mentioned in the last item.

So this is the challenge: how to spur movement from one mindset to another on 10 fronts simultaneously, each involving a substantial break with past thinking, while grasping how a baker's dozen of unfamiliar tools and concepts can advance learning in the emerging paradigms? Obviously this cannot be done in one huge step, only in many baby steps.

As a first baby step, I took this page from Cofino's (2008) playbook, "Embedding this new model for teaching and learning into the curriculum development process is a natural way to institutionalize change—if it becomes part of our curriculum, it becomes part of our teaching and learning practice" (n.p).

3. Possible Solutions: Focusing on Change

Technology has brought about profound changes in our lives. People have been concerned for centuries about what each generation perceives as radical changes to lifestyle brought on by developments in technology. Focusing just on the most recent era, two phrases used so far in this chapter both happen to have both been coined in 1962: "paradigm shift" by Thomas Kuhn in his book *The Structure of Scientific Revolutions* (http://en.wikipedia.org/wiki/Paradigm_shift), and "early adopters" by Everett Rogers in his book *Diffusion of Innovations* (http://en.wikipedia.org/wiki/Early_adopter). One of the most critical effects of rapid technological change has been on education; not surprising considering that the two works alluded to from 1962 both address not only certain consequences of change but how we grasp and assimilate those changes. Thus recent innovations in the dissemination of knowledge through the Internet have striking implications for how we learn in general.

The rapidity of changes and their impact on how we work and interrelate has led to a growing literature on change agency. Freedman (2006) has written a thoughtful article on change agency with sound advice on

1. carefully anticipating and preparing for counterarguments,
2. avoiding evangelicalism,
3. having a plan for the next steps beyond acceptance of your idea,
4. requesting specific action when approaching administrators, and
5. assuming that those who doubt your advice are trying to do their best.

Robb's (2006) approach to change agency is more recognizably systematic and assumes a driving force at the top of the hierarchy. Robb suggests that supporting teacher autonomy in technology at the program level should be managed as follows:

1. survey institution's technical support environment,
2. budget for training and resource personnel,
3. hire a (CALL or technology) specialist,
4. set up a faculty development program,
5. provide release time and funding,
6. encourage networking,
7. reward self-training and innovation, and
8. require the use of technology (brute force).

Cofino (2008) lists eight conditions for getting an institution to make "the shift to a 21st century learning environment" (n.p.). While recognizing the importance of "official acknowledgment of the vision and philosophy and clear expectations that change will happen" (n.p.), Cofino sees the change agent more as the dedicated support person (the specialist mentioned by Robb). From Cofino's list, ensuring that models for change are embedded in the curriculum has already been mentioned; the others include

1. making sure the infrastructure is in place,
2. making clear why change is needed,

3. ensuring that the framework for change sets out clear roles for each staff member, and

4. expanding the role of the support person to go beyond troubleshooting to publicizing success.

In situations where the administration is not providing the vision and driving the shift, change must come from the grass roots (or as one blog puts it, class roots; http://classroots.org). In these contexts the most effective change agents will be the teachers who (in Robb's scheme) construct their own networks and are motivated to train themselves and introduce innovations. In that case teachers at the class roots level can significantly impact their own professional development and that of others, as well as the curriculum that they themselves prepare.

Although my proposal to promote the use of pedagogical technology lapsed at my institute because of a change of directors, writing the proposal helped me to conceptualize my thinking on effective change agency. Meanwhile, colleagues in my department asked me to write materials that would introduce these concepts to students. I realized this would need to be done in such a way that teachers with little experience with these concepts would be able to understand them clearly and be comfortable teaching them.

4. Practical Applications

As I was struggling with preparing the materials for the project reported here, I confided in a Facebook update: "I'm trying to write teaching materials to explain social networking to students and teachers who know little about the topic beyond Facebook. It's difficult." My task was to update what my colleagues in my department had been teaching as computer literacy for the past several years: history of computing, hardware and software, and Internet safety. These topics consume the first 9 class hours of a semester-long course in computing that then becomes hands-on and practical. Our students' sophistication with computers changes year to year, and what seemed reasonable 5 years ago as an introduction to computing seems simplistic and outmoded today. I argued in favor of shifting the focus to social networking and was given approval to collapse some of the old materials into shorter units and create new units on updated topics. In so doing, I was able to articulate some of the concepts that our students should be aware of in order to consider themselves technologically literate in the 21st century, at least in areas where there is general agreement among educators who concern themselves with such matters and who understand that a new skill set is required to prepare young people to be able to adapt to "jobs that haven't been invented yet" (Fisch, 2006).

The materials at my institute are designed for nonnative English speaking UAE students just entering college. The materials are meant to be used in a classroom setting where (due to bandwidth limitations) video media cannot be reliably used and are aimed at students and their teachers who are only slowly emerging from a paper-based and teacher-centric pedagogical environment. In the case of the teachers, it is assumed that the new materials might represent their first contact with many of the concepts presented here, and they cannot be made to feel somehow

inadequate when teaching a class of students who themselves have not embraced the Web 2.0 and social networking either. The materials appear in two workbooks and are shared online: Basic Computer Literacy (http://issuu.com/vances/docs/computer_literacy_2009_lessons_1-3) and Social Networking (http://issuu.com/vances/docs/social_networking_2009_lessons1-3).

The lessons on social networking focus mainly on three key concepts: aggregation, RSS, and tagging. They include a lesson on Google Docs (a popular example of something we have until recently been doing almost exclusively on our PCs). This is also meant to introduce the students to the Google system so they can use Google Reader, one of the topics subsumed under RSS. It is hoped that having a Google login will encourage the students and teachers to explore more of what Google has developed for educators after completion of their brief introduction (see http://www.google.com/educators/tools.html).

4.1 Aggregation

An excellent illustration of aggregation can be found at Addict-o-matic (http://addictomatic.com). This site functions in ways similar to Pageflakes (http://www.pageflakes.com), Netvibes (http://www.netvibes.com), and Protopage (http://www.protopage.com) in that each allows users to display aggregated content on a single portal, but Addict-o-matic does this automatically, making it an excellent introduction to the concept. Watching the site in action can lead to a discussion of how its components work, and students can explore some of the sites used for aggregation, revealing a lot about other aggregators and how they work (e.g., the site searches Twitter, Bing, Friendfeed, Digg, Bloglines, Technorati, and many others). Another very interesting aggregator is Personas (http://personas.media.mit.edu), which is designed to reveal what can be harvested online about anyone's web presence.

4.2 RSS

To illustrate RSS, we review blogs, but as observers only. It seems unreasonable to require teachers to model the creation of blogs if they are not experienced bloggers, though blogging would be an appropriate technique in working with students on these materials. As observers, we follow blogs through their RSS feeds; I suggest some blogs that will hopefully interest our students and point them to the Edublogs awards site (the "Eddies;" http://edublogawards.com) where they can find links to many quality blogs on diverse academically oriented topics. I also have some practical examples of RSS at work such as its use in harvesting podcasts through a 'podcatcher.'

4.3 Tagging

Another key concept is that of tagging (this is how YouTube knows which video you choose and what others to suggest). For this we use delicious (http://delicious.com) and diigo (http://www.diigo.com), introducing as well the concept of social bookmarking and finding yet another instance of keeping in 'the cloud'

what used to reside on only one computer. Further work could be done with tags in Technorati (http://technorati.com) along the lines of the Writingmatrix project in which ESL students in various countries can find one another's writing (in their blogs) by tagging them with the unique descriptor "writingmatrix" (see http://writingmatrix.wikispaces.com; Stevens, 2009b).

4.4 Twitter

One web application that has a great impact on information dissemination is Twitter (http://twitter.com). Since the teachers of these lessons (in the UAE) are not likely to use Twitter themselves the first time they teach the course, the lessons are conceived so that it is not necessary for them or their students to create their own Twitter accounts. Instead they examine other people's Twitter streams, follow them in RSS via Google Reader, and tag them in delicious.

4.5 PLNs

Twitter provides a good introduction to how social media can be used to cultivate a PLN of worthy peers. Whereas it seems clear to many that teachers and younger learners would do well to learn more about social media, the hurdle for most people is seeding their networks in such a way that it develops into something that will feed them the kind of information that will transform their learning.

In both blogs and Twitter, individuals can see where people who have interesting things to say find their information. This is in fact how they leverage their own network since they can find others whose blogs and Twitter feeds they can explore. For example, one can use Twitter Mosaic (http://sxoop.com/twitter) to plumb the networks of respected colleagues who can in turn plumb one's own network; all parties can therefore see each other's contacts and add them to their respective networks (Stevens, 2009c). Stannard (2009) concisely explains how this works,

> The idea of Twitter is to network with other people who are working in the same area as you. ... Soon your Twitter account becomes a constant flow of interesting information from people who are plugged into your area. So how do you create these networks? It's probably here where most people stumble. The easiest way to build up your contacts is to 'piggyback'. You search for well-known people who are working in your area then click on all their followers. You can guess that most of the people who follow them will be interested in similar things to you. (n.p.)

Thus one's own network is seeded, and it flourishes when one starts interacting with it. (Going from passive to active would be the next step, to be taken in two baby steps: commenting on other people's work and then creating one's own. However, this is outside the scope of this brief introduction).

5. Adaptations to Other Contexts

Grunwald Associates and the National School Boards Association (2007) sur-

veyed 1,277 students in the US (ages 9 to 17), 1,039 of their parents, and 250 school board officials and reported that

> While a significant percentage of educators require their students to use the Internet for homework, school policies indicate that many are not yet convinced about the value of social networking as a useful educational tool or even as an effective communications tool. This may indicate that their experience with social networking is limited. However, they are curious about its potential—a sign that there may be some shifts in attitudes, policies and practices in the future. (p.7)

So the challenge described here is not unique to the UAE. This chapter suggests that for schools anywhere in the world to achieve a paradigm shift, some vision and direction from the top is essential for institution-wide success. However, change must also be driven at the class roots level by students and staff who realize the potentials of social media for learning and bring themselves up to speed prior to training others. The means of training (and being trained) is not so much through reading articles and books and attending lectures or workshops. These things are helpful; but, as with learning a language, to learn about social media, it is necessary to 'do it.' In order to do it, individuals need a PLN of peers who will interact with them so that all parties can scaffold each other.

6. Conclusion

The key to getting started is taking the small steps that lead to the formation of PLNs. If learning takes place less effectively in isolation, then learners must move toward greater socialization in their learning environments. They need to have made at least some of the necessary paradigm shifts in the way they conduct their personal and professional lives, or they need to be exposed to someone else who has made the transformation in learning behavior and who can model it for them.

So the first challenge for any institution is to develop a core of educators who are aware of the new technologies and their transformational potential for education. Once awareness has been raised to a requisite degree, faculty can then begin identifying areas within existing curricula in which new learning technologies might apply. Communities of practice, social networks, and distributed or in-house learning networks are essential to keeping current with the latest technologies. It is really a question of keeping attuned to a network of people with something worth sharing.

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