# *Learning With The Tide: Enhancing ESL Education With CALL*

Azizah Alogali, University of Rochester, USA

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ESL education has been progressing at a vigorous pace all over the world, with exemplary development programs emerging in the Middle East. The most progressive and rapid educational revolution has been taking place in Saudi Arabia. While Saudi schools have instituted myriad reforms and new programs, one type resource remains largely untapped: CALL (Computer Assisted Language Learning). Computers and the Internet have been proven to have many positive effects on student performance, classroom efficiency, and higher-level thinking skills among students, all while increasing the accessibility of materials. Through this literature review of the research on CALL in ESL education, it becomes clear that CALL has the potential to make a significant positive impact on student learning, and that CALL deserves a more prominent place in the Saudi education system.

Online learning has become an important component of most ESL classrooms, although CALL programs and curricula are still in development. The current literature on CALL focuses on critiquing new or existing programs and identifying ways in which they can be enhanced and revised. Grgovic (2010) laments the current pass/fail character of CALL evaluations and the lack of descriptive research on CALL experiences and processes. Although CALL is becoming increasingly popular, there are still many administrators and teachers who have reservations about its effectiveness. Fryling (2013) explains that teachers' perspectives and opinions on CALL vary across grade levels and geographic regions. Peng (2010) adds that internal consensus among teachers on the value of CALL is hard to find.

Despite its potential for positive impact on student achievement, schools struggle to implement CALL in a variety of ways. Certain unusual restrictions apply to online programs, such as the requirement of an I-20 form for international online students in the USA - regardless of their geographic location (Peng, 2010). While the I-20 requirement may seem absurd, it actually does serve a purpose: the documentation helps to ensure academic honesty and assists in the accreditation of schools on both sides of the screen. Educational marketing pushes the novelty of online learning, but pressure remains high for institutions to offer face-to-face learning. CALL is breaking down some of the boundaries between face-to-face and online learning with services such as Skype, chat rooms, and blogs. CALL, however, comes with high overhead costs - equipment, extensive training, and technical support are all necessary for proper implementation, but each carries its own price tag. (Peng, 2010, p. 122). While CALL improves the accessibility of learning to many disadvantaged groups of students, studies have shown that it is not sufficient to erase the inequalities of social class and physical environment (Bryan, 2011).

CALL programs have risen to popularity for numerous reasons. Programs range from intervention-type programs such as the Waterford Early Reading Program (Nauss, 2002), to programs such as Successmaker which are designed to improve standardized test scores (Gee, 2008). Enrichment and social communication are also taught using CALL, using both school-oriented programs and those designed for personal use. Contributing to the ascent of CALL into the arsenal of instructional techniques are physical constraints such as lack of classroom space, cultural shifts towards more electronically-integrated learning, and the vast improvements in student work when students are given access to online resources (Peng, 2010, p. 114).

Many changes have taken place in response to the emergence of CALL, and some general trends have become visible as more research on the topic is published.

Research has discovered that the success of CALL programs depends largely on teachers' perceptions and expectations of the technology, which vary a great deal across grade levels and geographic regions (Fryling, 2013). Although the teacher is largely responsible for setting the tone and integrating the software into classroom life, the teacher's role has experienced a shift away from its former centrality toward a more supportive, peripheral role (Meskill & Mossop, 2000). Online environments lack many traditional social markers, such as body language and tone of voice, but according to research they still act as facilitators of social interaction, and often level traditional social and academic hierarchies (Chang, 2010). However, CALL learners still require the same kinds of support from teachers, parents, and each other that traditional learning environments employ. In this literature review, these trends will be examined in detail, and their components analyzed with regard to positive application in the Saudi educational system.

Educational theorists have speculated widely on the possible benefits and drawbacks of CALL. What has come to light, however, is that online learning reflects various theories of learning much in the same way as traditional learning environments. Fryling (2013) makes an important point that teaching in an online format requires more than teaching in a typical classroom - CALL instructors must command pedagogical, content, and technological knowledge to teach effectively. For students of CALL, the mechanics of language learning as well as personal identity development have an expanded repertoire/ As Chang explains, "Through participation in social interaction and cultural practices, human beings construct who they are, give meaning to what they do, and understand what they know" (2010, p. 6). CALL allows students increased opportunities to observe and participate in the construction of identity. Further, it has the potential to offer an increased degree of cultural validation and appropriate, localized material for specific target groups (Black, 2006). CALL offers increased opportunities for self-teaching, and allows students to take on more responsibility for their own learning by problem solving, researching, and evaluating different resources independently (Black, 2006).

Chang (2010) states that human identities are "multiple, dynamic, and contextually situated" (p. vii). This cannot be more evident than within the CALL environment, where online discourse is employed as an "identity kit" that allows students to co-create their academic identities and observe the creation process in each other (p. 8). In doing so, students are exercising their human agency, choosing their own learning paths and taking control of their academic journeys (p. 40). In addition to increased self-awareness, CALL helps us reflect on the age-old debate in education: which is more important, product or process? CALL improves both, by allowing students to create more polished work, and by providing detailed evidence of the incremental and dynamic learning process (Chang, 2010).

Perhaps the most unique feature of online discourse is the heightened degree of intertextuality that it offers to both educators and students. The hyperlink is a defining characteristic of online communication, and has revolutionized the way in which online articles are written, for academic or personal use. As Hunt (2011) describes:

"hypertextual reading confers particular degrees of freedom to the reader who is able to determine not only the reading path taken, but also the level of attention and depth of reading allied to a text. While academics are well accustomed to citing and quoting widely, . . . blogs can also link directly to the other texts so that these other texts can

be read at source, in context, and all at one "sitting." The relationship goes two ways; the other texts gain an extra dimension too, in that they are now linked to another text or site." (p. 12-13)

Hunt's apt description and the other literary evidence show that online learning enhances many aspects of the student experience, and encourages students to take more ownership over their education. Formats like blogging "disrupt traditional classroom boundaries" and offer increased freedom and interconnectedness between texts (p. 16). In their diversity, CALL programs allow more opportunities for students to construct their identities and determine their educational values, all while engaging with educational content in more varied forms.

Literature on CALL reports both successful and unsuccessful programs in various regions and grade levels. The following programs were noted for their effectiveness and for the positive feedback they generated from both instructors and learners. Some schools rely on specially-designed programs and others use educational software publicly available for purchase. There are, however, many schools that rely on programs not created for educational purposes - blogging platforms, chat rooms, e-mail programs, word-processing software, and even games can all play a role in the CALL classroom. The most overwhelming success of CALL, reflected in the literature and in student feedback, has been in generating motivation and student self-determination. Time and again, the studies have shown that online learning that goes beyond simple drills contributes positively to students' feelings of ownership, accountability, and responsibility for their own learning (Meskill and Mossop, 2000).

One technique for developing students' autonomy involves the creation of online literature circles, in which small groups of students choose a book to read together, and each student is assigned a specific role with regard to the study of the text. These literature circles improved students' reading comprehension skills and their work ethic, and allowed younger students to work collaboratively with college students (Olmstead, 2001). An elementary-college collaboration of such length and depth would be impossible without the aid of the online setting. The exposure of middle-schoolers to higher-level thinking was also shown to be highly beneficial. Incorporating literature into reading instruction has also been proven to contribute to student motivation, interest, and pleasure (Black, 2006).

Other successful applications of CALL range from evaluation-based programs to writing platforms to creative and enrichment activities. Incorporating creative activities into literacy instruction within a culturally appropriate context yielded extremely positive results for English Language Learners, especially when activities honored the learner's native language and culture (Black, 2006). Most successful instructors balanced online and offline class time, following one of three major patterns. The first involves a brief introduction and explanation of the online activity to be completed, done in the traditional classroom style. The activity is then carried out, and afterwards, an offline reflection and discussion is held in order to process what was learned (Meskill and Mossop, 2000). Other successful modes of distributing educational content involve either in-class practice followed by online presentation of content, or online practice which is then followed by an in-class presentation of the content (Grgovic, 2010). These blended learning approaches allow the instructor to anticipate and respond to technical issues, and to place online activities in the familiar context of the traditional classroom setting. Students who participated in blended

courses involving blogging were found to contribute more, in terms of words written or number of assignments, than those in traditional classrooms (Hunt, 2011). Students who used the software program Successmaker achieved higher scores in reading comprehension and greater efficiency than those not on the program, an improvement which increased during subsequent years of use (Gee, 2008). Instructors found that, while their teaching methods and values did not change significantly, their range of educational tools was expanded considerably with the addition of CALL, and that they were able to take on a more supportive and less authoritarian role in class (Grgovic, 2010).

While it is less concrete than the evidence of improved test scores and language fluency, student and teacher feedback on the subject of CALL has been overwhelmingly positive. Both instructors and students reported enjoying the blended learning process and would recommend it to other institutions for future use (Grgovic, 2011). ELL's especially enjoyed the function of online chatting with classmates and teachers, due largely to the "safety net" that online learning, with its easily accessible language tools, such as dictionaries and search engines, provides (Ma, 2009). Students also reported that learning online afforded them more opportunities to practice independently, and to work at their own pace (Grgovic, 2010). ShengChieh Peng (2010) explores the elements that contribute to student and teacher perceptions of and satisfaction with CALL in depth, outlining both "fostering' and "inhibiting" factors for each of five schools. His research revealed that the role of CALL was influenced from many different directions. Top-down pressure from administrators, marketing forces, and economic considerations encouraged the adoption of CALL, but so did positive teacher and student attitudes towards this new technique. According to Peng, students have come to expect the integration of CALL into their classes, and enjoy it for its ability improve their academic self-development. Other fostering factors included comprehensive support from technology, human resources, and policy staff, the convenience of CALL, and the incentive of participation in professional conferences for schools that employ emerging computer technology. All of this research points to the many benefits of CALL, if applied correctly with a critical eye and an understanding of each institution's own culture and unique needs.

Research has unveiled that despite the numerous advantages of CALL, there are still some areas which continue to require further development. One facet of CALL that continues to pose a challenge to educators is the differing levels of student familiarity with technology. According to Fryling's (2013) research, students' proficiency with different forms of technology varies widely within the classroom. This creates inefficiency for teachers as they struggle to bring less-familiar students up to speed with the current technology and bridge the gap between them and their tech-savvy peers. There is no guarantee that any class will have a certain baseline of computer skills, and teachers lose instructional time attempting to familiarize all students with the programming (DelliCarpini, 2012). In the case of one school where students were each provided with laptop computers but not with additional training in computer use, the students in possession of computers failed to achieve better grades and rates of homework completion (Bryan,, 2011). This may be attributed to students' varying levels of technology experience, or to the developmental limitations of their age group (5th grade, ages 10-11) in areas such as time management and self-discipline (Bryan, 2011). Students who are performing at widely different levels are also extremely difficult to track within a single class. As one administrator explains, "...it is hard to

monitor student interaction and easy to lose sight of some of them. Some just do not participate on the same level as others." (Peng 2010, p. 112).

Perhaps the biggest obstacle to the effective implementation of CALL, however, is the lack of teacher training in technology, cultural competence, and online pedagogical values. Schools' failure to achieve internal consensus on the proper role of online learning has consistently been linked to poor implementation of programs and, subsequently, poor student performance (Peng, 2010). All too frequently, teachers are given insufficient time and support to master the programs they are expected to teach (DelliCarpini, 2012). In the case of the school instituting the one-to-one laptop program, teachers were only given one week's notice to prepare and adjust their curricula, as well as preparing to offer students technical support (Bryan, 2011). It is no surprise that this experiment was unsuccessful. The lack of teacher training often stems from budgetary concerns and financial constraints, but the disorder and inconsistent teaching that result from them actually sap institutions' finances more than investing appropriately in CALL would have initially (Butz, 1989). Additionally, when administrators and teachers fail to agree on CALL values, ineffective teachers resort to using CALL as a crutch or filler activity, while those who are suspicious of CALL's value might ignore or under-employ it (Gee, 2008, Nauss, 2002). Further, teachers who are required to provide constant support while attempting to teach in their content area become frustrated and over-extended (Peng, 2010). It is essential for technology support to be delegated among staff members instead of relying solely on teachers who are themselves underprepared.

Students who are learning a second language in an online or blended setting suffer from dual sources of confusion and frustration - the language barrier and the technology barrier. In order to make CALL accessible and enjoyable for ELLs, it is important to honor both English and the students' native language, an attitude which is not always cultivated among educators and policymakers. Black (2006) found that students excelled in their online coursework when instructional time was balanced between both language, despite the fact that in the US, Spanish-language education is not funded by federal programs. CALL software for ESL purposes is usually created entirely in English (including menus, instructions, and other peripheral communications). This monolingual bias had little effect on the language deficits of ELLs if not used in a setting that honored the students' first language (Nauss, 2002). Standardized tests are also administered almost exclusively in English in the US, which places yet another barrier before ELLs who struggle to read test instructions in a foreign language, even if they are performing at grade level in the language classes (Nauss, 2002). These shortcomings of current CALL instruction reflect the limitations of current educational policy more than those of the technology itself, but it has been argued that the software and online tools do have their own constraints.

Although technology opens many doors for students and educators, there are some purposes and functions which it still cannot satisfy in the current day and age. Technological devices are still subject to wear and tear, theft, and damage, just like traditional instructional materials, and even with the advent of the Cloud data can still be lost and erased (Bryan, 2011). Regardless of new software which allows virtual face-to-face communication, it is still more difficult for online students to cultivate friendships and create social bonds - especially younger elementary students (Bryan, 2011). Some families continue to struggle with limited access to technology, even if

the resources are available at school, making socioeconomic status a lingering determiner of academic success (Bryan, 2011). Negative or non-constructive associations between certain CALL functions, such as chat, and other social activities require students to focus and modify their behaviors, which is not always effective (Ma, 2009). Even when programs appear to be effectively administered and students participate as they should, CALL programs do not always succeed in providing increased grades or test scores (Nauss, 2002). Whether due to the artificial nature of online groupings, the limits of programs' designs, or concerns about test security online, CALL is still an educational discipline in progress (Ma, 2009, Peng, 2010). As one program director explains:

"The real interaction between human beings, the affective and kinesthetic elements of face-to-face instruction, the feeling of pressure and frustration,the interactive joy of language learning, and the cultural aspects of classroom learning are something that an online environment has yet to duplicate." (Peng, 2010, p. 93)

It is clear that CALL can be improved and refined in many ways in order to improve trust, cultural appropriateness, and the ability of programs to meet a wider variety of student needs.

This literature review offers many insights on how online education can be incorporated into schools, as well as exploring how current programs might be improved. These discoveries could be put to great use in the Saudi education system, especially in light of the recent educational revolution and the flourishing of Saudi schools. The advances in CALL can be incorporated into Saudi K-12 education in order to improve student fluency and literacy skills, and to make use of the vast resources technology offers.

Time and time again in CALL literature, one challenge continues to present itself as the root of so many program failures and inefficiencies: lack of teacher training. Meskill and Mossop (2000) demonstrated that the relationship between teacher training and the success of CALL programs is direct and essential. Bryan (2011) also argues that teachers should be more extensively trained in the use of CALL, and attributes the lack of teacher preparation to the failure of the one-to-one laptop initiative. However, teacher training, which often takes the form of seminars, webinars, and workshops, must be conducted in a "smart way" (DelliCarpini, 2012). The literature points to several considerations that make for more "smart," or efficient, teacher training. First, teachers should be given more time to become acclimated to new technology. In Bryan's (2011) study, the teachers were only given one week to prepare for their students' new laptops. Clearly, this period could have been extended and supported with more technology staff, training in technological problem-solving, and an exploration of common problems associated with student laptop use (Bryan, 2011, p. 81). Training teachers is extremely important because it gives them a sense of ownership and confidence over their new teaching resources. Increased training might help to combat the stigma against technology as something that will replace human teachers or render them irrelevant, and confirm that technology is a useful tool, but not capable of functioning without a teacher.

Teaching with CALL is a task which requires several different types of knowledge. Fryling (2013) described the concept of "TPACK" - technological, pedagogical, and content knowledge - to explain the variety of skills that teachers must have in order to

effectively teach with technology. However, teachers' responsibilities in the CALL classroom often become over-extended when they are expected to simultaneously offer tech support to individual students while teaching the class. This places an unfair strain on teachers and creates frustration and conflict, reducing teachers' motivation to use CALL and making classes less efficient and effective (Grgovic, 2010). Increasing the amount of support staff for technology, although it increases costs, will ultimately improve student progress and allow teachers to excel in CALL-enhanced instruction. Teachers' beliefs and values about technology and its merits vary widely, often due to negative experiences such as those brought on by the lack of tech support (Grgovic, 2010). In order to ensure internal consensus about CALL's importance - a necessary step toward greater effectiveness, according to Peng (2010), there should be a place for the role of technology in schools' mission statements, and teachers should be required to attend training until they are proficient in the required tech skills. This will help all instructors realize the importance of technology in education and overcome their negative prejudices or past experiences. Teachers who embrace technology and find creative ways to integrate it into the classroom should also be rewarded appropriately.

Since Saudi education has experienced such a radical shift in recent years, many modern educational values and methods have found their way into Saudi schools. One technique of ESL education that has been celebrated by many prominent scholars and institutions is that of bilingual instruction in a culturally sensitive and appropriate context. DelliCarpini (2012) argues that CALL learners benefit immensely from receiving instruction in both their native and second languages, in a fashion which does not value one language over the other. Teaching with CALL and valuing both English and Arabic literature equally will allow for each language to retain its contextual and cultural significance. Online texts, or "e-texts" as Meskill and Mossop (2000) refer to them, can be extremely useful in ESL instruction, but the authors caution instructors against relying too heavily on them. Like all the tools of CALL, the best place for e-texts is as a supplement and support for regular instruction, not a substitute for it. CALL also lends itself well to more modern educational techniques, such as collaboration across age groups, self-evaluation, and more democratic student dynamics (Olmstead, 2001). One of the strongest advantages of CALL is that it opens up the possibilities of instruction to "accommodate a variety of learning styles... because there are always a mix of styles" that work best for different students within the same ESL classroom (Peng 2010, p. 110). More diversified instruction, more individual attention, and more collaborative opportunities are all benefits that come with embracing CALL.

In conclusion, the literature illustrates clearly that there are many benefits to adopting CALL techniques in ESL instruction when they are properly applied. The applications for CALL within the Saudi educational system have the potential to improve efficiency, reduce costs, and make students more self-motivated, independent, and fluent in both English and Arabic. While technology is still a growing and evolving field, there are many programs which have proven success in varying levels of education in the US. These programs can be utilized by Saudi schools in order to make our educational system more robust and competitive.

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