An Outline of Developments in Language Learning Technologies

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Abstract:- Computer-assisted Language Learning (CALL) was started as basic textual gap-filling tasks and simple programming exercises of behaviourist approach. However, CALL has gone beyond interactive multimedia presentations with sound, animations and full-motion videos. More recently, the Internet offers a range of sources that could revolutionize language acquisition and teaching-learning process. The reason behind the practice of technology in language teaching is changed as per the developments in pedagogy and technology. The present paper offers a historical perspective of CALL developments that can help providing a sense of direction for the language teachers of the digital age.

Key words: CALL, Language Teaching, Digital Learning

1 INTRODUCTION

Due to tremendous developments in Information and Communications Technologies (ICTs), Computer-assisted Language Learning (CALL) has become an important area of discussion in applied linguistics. It is “the search for and study of applications on the computer in language teaching and learning” (Levi, 1997). CALL has passed a history of more than half a century and it has brought many significant changes in the global scenario of technology in language teaching. Initially started as basic textual gap-filling tasks and simple programming exercises of behaviourist approach, CALL has gone beyond interactive multimedia presentations with sound, animations and full-motion videos. At present, research focuses on the possibilities of the Internet based resources in language teaching and learning. The recent improvements in the field are the continuation of the pedagogical and technological perspectives of the earlier version. This prompts the necessity to study the developmental history of CALL to have a sense of future directions of technology in language teaching.

2 CALL IN THE 1950’S

Initial CALL programmes for drill and testing appeared as early as the 1950’s in the United States. Such programmes were limited in nature. Those initiatives were influenced by Cold War (1945-91) political motivations and were meant for teaching and learning Russian. CALL programmes were first created at Stanford University, Dartmouth University and the University of Essex. Initially, computers were used for teaching languages through grammar translation method. These programmes required the learner to choose one of two answers and the score was presented after the data had been processed. This linear type of program was the first generation of CALL software, and both researchers and educators acknowledged its limitations (Fotos and Browne, 2004). Research continued to create a learner interface that presented the computer as an interactive tutor evaluating the student and providing feedback.

3 STRUCTURAL CALL OF 1970S-1980S

Among the first and most significant applications for the teaching and learning of language at the computer were those used on the Programmed Logic/Learning for Automated Teaching Operations (PLATO) system, developed in 1959 by the University of Illinois. PLATO’s computer and its programming language were custom-designed for the purpose of teaching language, as well as a range of other university-wide disciplines. Much of PLATO’s first language learning work was done in teaching Russian using grammar translation method, which dominated foreign language teaching from the 1840s to the 1940s. Russian language teaching and learning included grammar explanations, vocabulary drills and other drills and translation tests. The earliest language learning programmes were strictly linear, requiring each learner to follow the same steps in the same fashion with rewards in the form of points and advancement for correct answers. Thus, the first phase of CALL has been termed Behaviourist CALL (Warschauer, 2004). It dominated the 1960’s and 1970’s and replicated the teaching techniques of structural
linguistics and the audio-lingual method, a behaviourist model of language learning based on habit formation. CALL consisted mainly of drill-and-practice programme and was regarded as supplement to classroom instruction rather than its replacement. However, even today, various drill programmes are used for vocabulary study and grammar practice with the logic that continuous exposure to such material can promote language acquisition. In addition, the computer provides both immediate feedback and presents material at the learner’s pace, thereby encouraging learner autonomy.

4 COMMUNICATIVE CALL OF 1980S-1990S

By the end of the 1970’s, however, behaviourist approaches to language learning were challenged by communicative approaches based on meaning-focused language use rather than formal instruction. The emergence of increasingly powerful microcomputers in the 1980’s presented a greater range of possibilities for learner. Microcomputers are what we would now call ‘desktop computers’ or ‘personal computers’. ‘Portable’, or ‘laptop’, computers are included in this last category, but were introduced much later and are now far more powerful than the first mainframe computers. Along with the publications of books in this field, this period also witnessed the establishment of key professional organizations such as the Computer Assisted Language Instruction Consortium (CALICO) in the United States and the European Association for Computer Assisted Language Learning (Euro CALL), and publication of their journals, CALICO Journal and Re CALL respectively. As mentioned above, changes to the field of CALL in 1980’s were marked by a shift from mainframe computers and computer workstations such as UNIX machines to desktop models with applications that were more easily available for classroom use. Even though these machines were limited in power, it meant that classroom teachers could begin experimenting with creating their own, often simple, CALL applications to address local language teaching and learning concerns in a broad range of languages. At the same time, the move to a more affordable platform with a larger installed base of computers within schools began to encourage and influence the production of commercial software programmes. In addition, language teachers themselves began to develop language-learning software using programmes such as HyperCard, which were based on a nonlinear concept of interactivity-one of the key concepts driving the subsequent development of the Internet. This next generation of CALL software was termed as communicative CALL because it emphasized communicative use of the language rather than mastery of isolated forms. Programmes consisted of language games, reading and writing practice, text reconstruction, cloze tests, and puzzles.

5 INTEGRATIVE CALL IN THE 21ST CENTURY

In reaction to the criticism that CALL was limited to mechanic drills and lacked the ability to give learners essential feedback, the early 1990’s was characterized by a different model, the computer as stimulus (For a glance at stages of CALL, see table 1). Here, software followed cognitive model of language learning that aimed to stimulate students’ motivation, critical thinking, creativity, and analytical skills rather than merely the achievement of correct answer or the passive comprehension of meaning. A related learning model was the use of computer as a tool providing the means for students to become active learners (Levy, 1997). Software in this category, such as word processor, spelling and grammar checkers, desktop publishing programmes, and concordancers did not supply language-learning activities, but facilitated the students understanding and manipulation of the target language.

The present stage of CALL, integrative CALL, arose in the mid 1990’s and has been made possible by the development of powerful desktop computers that support rapid use of Internet, local area networks (LANs), multimedia, and linked resources known as hypermedia. For instance, a typical multimedia language programme assigns students a reading assignment in the target language, use a dictionary, study grammar and pronunciation related to the reading. The same programme can also access support materials and translations in the first language (L1), view a movie of the reading, and take a comprehension test on the reading content, receiving immediate feedback. This is a highly interactive and individualized approach, with the focus on content supported by modules instructing learners on specific skills. The rise of LANs to teach writing interactively and email exchange programmes among students, classes, and institutions are examples of interactive language learning activities.

The rise of the Internet has promoted the use of CALL for information retrieval, creating the concept of computer literacy, a term referring to the development of skills for data retrieval, critical interpretation, and participation in online discourse communities. Learner autonomy- the influential concept from general education suggesting that students learn better when they discover things through their own efforts rather than when they receive knowledge through instruction- is an important goal of the current view of CALL. Another feature of integrative CALL is the movement away from language learning software and CD-ROMs to Web-based activities that allow learners flexible, self-paced access to information. Thus both teachers and students increasingly view computers and CALL as means to an end- the end being authentic, web-based communication for meaningful purpose-rather than merely as a tool for language learning (Fotos and Browne, 2004). For example, under the teacher’s guidance web-assisted English reading can stimulate students’ enthusiasm and creativity. It is a beneficial way for students to apply a correct reading strategy to improve their efficiency and ability (Yan & Hua, 2010).
TABLE 1
The Three Stages of CALL

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<tbody>
<tr>
<td>Technology</td>
<td>Mainframe</td>
<td>PCs</td>
<td>Multimedia and the Internet</td>
</tr>
<tr>
<td>English teaching paradigm</td>
<td>Grammar translation and audio-lingual</td>
<td>Communicative language teaching</td>
<td>Content based, English for Specific Purposes</td>
</tr>
<tr>
<td>View of language</td>
<td>Structural (a formal structural system)</td>
<td>Cognitive (a mentally constructed system)</td>
<td>Sociocognitive (developed in social interaction)</td>
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<td>Principal use of computer</td>
<td>Drill and practice</td>
<td>Communicative exercises</td>
<td>Authentic discourse</td>
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<td>Principle objective</td>
<td>Accuracy</td>
<td>Fluency</td>
<td>Agency</td>
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Note. Based on Warschauer (2004)

The following reasons show the importance of integration of various aspects of technology with curriculum, instruction and assessment in Foreign Language teaching and learning (Technology in Foreign Language Teaching, 2013):

- Students are generally technology literate and have become accustomed to using computers, videos, and other technology-based means of acquiring information.
- Students learn at different rates and have different learning styles. The use of technology helps teachers reach all students in different ways.
- Technology helps to relate the curriculum to life outside the classroom.
- Technology helps to involve students in worthwhile, interactional activities, such as interpersonal exchanges, information gathering, and problem-solving projects.
- Technology helps students to be active participants.
- Using different aspects of technology helps motivate students to learn.
- Technology adds many dimensions of foreign language learning, particularly with the use of multimedia programs.
- Technology helps to make the study of foreign languages very practical and significant in children's lives. The students can communicate readily through e-mail with children in a foreign country.
- Students have the opportunity to work in a collaborative manner.
- Technology gives students opportunities to use their productive and receptive abilities for real purposes, such as publishing a newsletter or writing interactive journals.

5.1 RECENT CALL DEVELOPMENTS

More recently, the Internet offers a range of sources such as news websites, commercial websites, websites for young people, culturally authentic websites. These make it possible to locate several types of stimuli in the form of texts, audio files, videos, etc., which in turn can be used in a variety of ways for language learning. Mostly they help to develop vocabulary, to practice reading and listening skills, to get exposure to authentic language and develop language awareness, and to use as a background or starting point for authentic tasks or cultural information (Evans, 2009). Moreover, technology as a means of communication can potentially contribute to the implementation of “intercultural communication, sociolinguistic and pragmatic development, and online communication and linguistic accuracy”. Internet based technologies, such as Google, wikis, Blogs, Skype, YouTube, Podcasting, and social networking sites, offer useful and teacher-friendly suggestions on how these tools could be used in second language teaching and learning (Oxford & Oxford, 2009).

The digital media is found to enhance the powers of language, oral and written, just as written language could enhance the powers of oral language. It has reshaped communication. For example, digital media like text messaging, Twitter, Facebook and other social media are bringing back concrete images and experiences, as well as metaphors for understanding the abstract and complex (Gee & Hayes, 2011). Digital media, resulting in new forms of digital literacy, are powering language and literacy up. This makes possible the rise of new literacies beyond reading and writing print text, allowing for meaning-making using multiple sign systems such as video, images, multi-media, etc. Through online games, blogs, and social networking sites, diverse groups of people are interacting on a scale that defies time and space (Gee and Hayes, 2011, Oxford & Oxford, 2009).

If teacher-centric instruction is out, then student-centred approaches are definitely in, as is recognizing the need for learner autonomy and cooperative learning. In the twenty-first century, individualized instruction is becoming the norm. As educators and schools recognize and celebrate students’ demonstrations of knowledge in clear and tangible ways, so too are we celebrating students’ individual talents, aptitudes and skills (Eaton, 2010).
addition to the technologies that demonstrate student learning, there are also the technologies that facilitate student learning. These technologies may be synchronous (done in real time), such as Skype, Moodle or virtual live classes; or they may be asynchronous (not done in real time) such as podcasts and blogs. It is likely that asynchronous technology will give way to synchronous technologies, as the latter become more sophisticated. For example, mobile technology for learning is definitely another development. It is called “MALL” (mobile assisted language learning) and it is quickly gaining as much buzz today as “CALL” (computer-assisted language learning) created in the 1980s and 90s (Chinnery, 2006). It is not impossible that in the future “apps” or some variation of mobile applications, may replace textbooks (Eaton, 2010).

6. CONCLUSION

Thus, CALL has become a wide subject encompassing different aspects of language teaching and learning. Because of the rapidly changing nature of technology, it is impossible to visualize the changes that will occur because of future developments in CALL. Depending on the creativity of the teachers, CALL can be used as an effective tool to enhance possibilities in Second-language Acquisition (SLA). The possibilities of CALL in English Language Teaching (ELT) is an important area of study, especially in the context of India, where English has become a link language of the people. We can observe that we are heading toward a world without boarders, with the rise of knowledge brokers and information literates as new aristocracy and power elite. However, the expensive technology and infrastructure required for online activities tend to privilege the culture and educational pedagogies of the advanced nations, creating a hegemonic ‘digital divide between technological haves and have-nots’ (Murray, 2000). Understanding the historic developments in CALL will definitely help teachers as well as administers to have a sense of direction for future ventures in the field.

REFERENCES:


