

Review

Information Technology (IT) for teaching and learning

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The present research discusses the challenges to learning and its methodological principles posed by the new technologies. It will be argued that the integration of new media into learning is a necessary step ensuring the acquisition of the kind of teaching and learning needed for living and working in the knowledge society. In response to a growing dependency on IT technology, learning how to use the IT has become part of many public educational curricula. However, not all people receive their IT training in public schools. In recent years there has been increasing emphasis on IT training, often through community education programs or in-service training. In recent years, attitude towards Information Technology has been the subject of many studies, within different theoretical frameworks and methods. Information Technology (IT) is one for the issues that divides the world. The digital divide raises the imperative to set educational priorities for the use of IT in schools and to understand its efficacy in teaching and learning. It is essential to establish best practice worldwide so that scarce resources are used effectively. While the IT benefits include increased productivity, professional presentation of students' work, and an enriched learning environment, the implementation of IT does not constitute a panacea for all educational woes, and, if poorly instituted, can add to a school's problems and introduce a spate of new woes. New information and communication technologies and their role in learning processes are the topic of this paper, but constructivism as the appropriate paradigm for learning and teaching in the coming millennium will also be discussed. In addition, the paper proposes a typology and an evaluation of technology-enhanced materials for language learning.

Key words: IT, Information Technology, teaching, learning.

INTRODUCTION

Recently, attitude towards Information Technology has been the subject of many studies, within different theoretical frameworks and methods. Information Technology (IT) is one of the issues that divides the world; our society has become a knowledge society, where information globally networked and more freely accessible than ever

before needs to be processed and transformed into knowledge by those working within a technology enriched environment (Rogers, 2005). In many instances, it is mandatory, therefore, it is easy for students registered in the Polytechnics, Colleges of Education and Universities. Introductory IT training are made mandatory as part of

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of the General Studies requirements for graduating. Those who were opportune to take computing courses then and are not in computing and allied fields are in possession of knowledge that has become very absolute.

Learning has often be described as one of the most impressive mental operations of the human mind in view of the complexity of grammatical structures, the size of the mental lexicon, and the multiple functionality learners of any language are confronted with (e.g. Schwarz, 1992: 102). As a result, much controversy has arisen as to how a language can best be learned. Various theories of learning and cognition have influenced numerous approaches to language learning. In the past, scenarios built around acts of learning as opposed to processes of acquisition have dominated foreign language learning for a long time. Knowledge construction as a further aspect has only recently been added to the concepts discussed, but cognitive approaches had already begun to focus on building a learner's experiences and providing challenging learning tasks which can function as "*intellectual scaffolding*" (Roblyer et al., 1997) to help learners learn and progress through the different stages of a curriculum. Emerging economic situation, the popularity of self-employment as an alternative to a high rate of unemployment opportunities pervading the public and private sector and the need to make use of modern innovative information technology applications has become a driving force behind the quest for computer skills by students.

IMPORTANCE OF IT IN TEACHING AND LEARNING

In the case of the IT, it means learning to communicate with a machine. Communication, in this sense, refers primarily to knowing how to use IT, knowing the right inputs, recognizing the significance of the outputs. Literacy, however, means to understand the cultural significance of the communication. Technological literacy, then, means to understand, appreciate and critique technology. To be technologically literate is to be better able to participate in a technological culture, to share rights and privileges, and to shoulder the responsibility for a technological society (Dale and Charles, 1993).

Learning is viewed as an active, creative, and socially interactive process and knowledge is regarded as something children must construct and less like something that can be transmitted or transferred (Florin, 1990). Learning based on constructivist principles will allow learners to tap into resources and acquire knowledge rather than force them to function as recipients of instruction. Such approaches are meeting with growing approval and are regarded by many educational thinkers as a suitable theoretical framework for the language learning environment of the future as well as for the development of appropriate technology enhanced materials for the learning of foreign languages.

It also means that making use of new technologies in language learning simply in the format of computer-based instruction packages with traditional grammar and vocabulary drills is not the best way of exploiting their real potential for innovation. Unfortunately, the majority of materials available to date follow a traditional; often even behaviourist drill and tutorial paradigm, which - quite understandably - leads a number of colleagues to reject the use of technology enhanced courseware.

Innovation by means of new technologies in language learning needs to search for other kinds of applications and follow more accepted models of learning. As far as foreign language learning is concerned, research into the processes of language learning and acquisition suggests that mere training in structural (grammatical) and vocabulary knowledge will not result in real linguistic competence and language proficiency. However, apart from basic communicative competencies, favoured in the communicative classroom of the 80s, strategies of language processing and learning competence as well as language awareness are regarded as an essential part of the overall aims of any language curriculum.

IT technology based teaching and learning materials became more common in educational settings. To provide an information source for teachers, administrators, students and parents, different portals and web sites have been developed worldwide. Teachers are able to find information about the new curriculum, programs, activities, and sample annual plans for classes for different majors. In a study carried out in thirty-four Curriculum Laboratory Schools with 1705 teachers (Tüy, 2003), it was reported that the number of teachers using educational technology devices like CD-Rom, DVD and data-show was very small although schools had the required equipment. None of the teachers reported that they used the Internet in their lessons: Teachers emphasized that they needed specialists who could support them and provide required information to use educational technology. Later, Demirarslan and Usluel (2005) presented similar results: Majority of the participant teachers confirmed that they often preferred traditional methods instead of integrating information and communication technology in the education process. The rate of the teachers who had never participated in an online project with their students was 80%. In another study (Deniz, 2005), teachers and school administrators' use of computer for professional purposes was stated as low. Further, Kabadayı (2006) reported that teachers mostly tended to use traditional teaching devices rather than contemporary devices: Although they did not perceive the use of technological devices as a waste of time and believed in its positive effect on learning, they were not motivated enough to overcome the difficulties of manipulating technological devices. There seems to be different variables affecting technology adoptions and use

which needs to be considered in getting individuals to benefit from new technologies.

Recently, attitude towards IT has been the subject of many studies, within different theoretical frameworks and methods. Also, there have been a substantial number of studies in Turkey about students and teachers' attitudes towards technology use (e.g. Akkoyunlu, 1996; Altun, 2003; Asan, 2002; Bayhan et al., 2002; Deniz, 2005; Gomleksiz, 2004), however, most of those studies examined the interaction between attitude toward technology and students ND teacher/prospective. For example, Altun (2003) studied the interaction between prospective teachers' attitude and students towards computers and their academic achievement, the study concluded that academic achievement could be considered as an effective contributor to participants' attitudes toward computers (Akpınar and Bayramoğlu, 2008).

New technologies have become the predominant influence on the way we live and work at the beginning of the new millennium. Some view the changes effected by global networks and information technologies with some apprehension. Others consider the innovative potential of worldwide co-operation via e-mail and internet as well as un-prohibited access to information and digital resources by means of telecommunications and other forms of electronic publication to be of benefit for both the professional and the educational world. In the richer countries, schools can afford, or are supplied with, infrastructure, hardware and software, that develop generations of e-literate students, highly advantaged in the new technology. In the poorer countries, school administrators may be without electricity, let alone sufficient bandwidth, or students with personally-owned laptops. IT has the potential, also, to close this divide. The digital divide raises the imperative to set educational priorities for the use of IT in schools and to understand its efficacy in teaching and learning. It is essential to establish best practice worldwide so that scarce resources are used effectively. While the IT benefits include increased productivity, professional presentation of students' work, and an enriched learning environment, the implementation of IT does not constitute a panacea for all educational woes, and, if poorly instituted, can add to a school's problems and introduce a spate of new woes (Harel and Papert, 1991).

According to the researchers' findings, the necessary and vital part of the present study is to be clear about the level of technical difficulty of a course before beginning of classes and restate this information on the first day of class. There are some important reasons for this; that is, the mention reasons are used to ensure language learners to challenge through the learning language by the internet. Technology has immense power to transform learning in and beyond the classroom and educational decision-makers need to address, understand and define

the relationship between technology and improved learning, so that the market within education is not exploited for commercial gain only. Educator-training institutions need to incorporate appropriate computer skills and knowledge of effective exploitation of the technology within teacher-training courses, as well as continuing professional development. Finally, the relationship between IT proficiency and learning outcomes requires further research and proof.

GENERAL DISCUSSION

PEDAGOGICAL ASPECTS

IT has the potential to transform learning in and beyond the classroom. It can also in certain circumstances transcend previous limitations of space and time. Some of the perceived benefits to learners are as follow:

- Students can access enormous amounts of information quickly;
 - Students can work at their own pace;
 - Special needs, both remedial and extension, can be offered during the same lesson;
 - Course material can be offered simultaneously in different languages;
 - Students can access quality material irrespective of their geographical location;
 - Students can interact with peers and experts outside the classroom, town, and/or country;
 - IT can offer simulations where the student can experiment by changing the variables;
 - IT offers a host of different tools to demonstrate learning suitable for divergent and different intelligences; and,
 - Young students have readily accepted the technology.
- There are also benefits for teaching, too. While largely dependent on the teaching methodology employed, these benefits include:
- IT can, via multimedia, improve the richness of the learning experience;
 - IT can track a student's progress and proficiency at certain skills;
 - They allow the teacher to focus on process rather than product;
 - IT, on their own, will not improve learning.

Possible pitfalls to the deployment of IT include:

- The ability of educational systems, curriculum development to keep pace with IT innovation is problematic;
- The individualized role of the teacher can be diminished where more and more material is offered via a centralized content vendor. There could be a loss of teaching individuality.

PROFESSIONAL DEVELOPMENT FOR OUR STAFF

Some staff members are inflexible or unwilling learners, so systems to support and develop teachers are paramount. New teachers coming out of training institutions should be equipped to exploit the new technologies. The success of the implementation of IT in a school is at risk unless teachers are trained so they can take responsibility to guide and support the learners and integrate the learning experience with IT tools.

GLOBALIZATION

Increased information access via the Internet will present global challenges of language, commerce, context and integrity. Already, information transfer and the Internet have significant social, financial and political implications. Threats to language, traditions and cultural and value systems as the students assimilate global ways and become global citizens through contact with other cultures using the communication features associated with IT. These same communication channels allow the pervasive reach of big business to infiltrate an even larger percentage of the market. The role played by big business, such as Microsoft, Cisco, HP, Sun Microsystems, Intel, etc., who wield budgets in excess of numerous countries, could have a huge impact in trying to shape education. They have a responsibility to declare their social and moral obligations to the societies they sell their products to; but educational leaders will need to be proactive in moderating their influence. Computer technology will have an impact on how we teach in the future. The rate at which computer technology is being adopted is staggering. For example China will have an additional 250,000,000 internet users in 3 years. To ignore its impact, while the rest of the world comes on board, would mean to fall behind.

THE DIGITAL DIVIDE

There are enormous variations in access to quality IT. The digital divide is widening and linked directly to poverty and geography. Access to IT for all is an issue that educational leaders need to consider. The digital divide, between the rich and poor nations, could be narrowed or widened as IT technology has the capability to do either. The result will rely to some extent on how educational leaders respond. If properly utilized, IT has the potential to close the gaps between literacy levels globally in a short space of time. The largest limitation to IT access for our learners is cost, hardware, software, licensing and broadband transmission. This is linked directly to social and developmental contexts of the culture in question.

Notions of IT Literacy Will Gain Currency

IT literacy will impact on educational traditions. The new habits of young people, shaped by IT, will need to be incorporated into how we teach and they learn. For example, the new way people read, process stimuli, etc., will shape how we present information, write text books and facilitate a lesson. Just as we have issues of literacy facing our young people, the concept of information literacy will gain increasing currency. We need to ensure that concepts of understanding, judgments, discrimination, and communication are applied to what is available through IT.

IMPLICATION AND STRATEGY

Recommendations for IT members

What can we do now?

1. Learn 'Best Practice'
 - Share research relating to the implementation of IT in education amongst each other.
 - Post exemplary examples of good initiatives and lessons on the ICP website.
 - Establish email links to develop a culture of communication between each other.
 - Contribute to the agendas on needs and resource sharing in Council meetings.
2. School leaders have a responsibility to demonstrate and lead in IT applications.
3. Challenge national teacher education courses and institutions for IT courses and content that will arm new teachers with the appropriate skills and know-how.
 - Are emerging teachers being trained to face these new challenges?
 - Is there effective and appropriate in-service training for our existing staff?
4. Challenge the national education departments to engage in an 'entitlement discussion'.
5. Acknowledge that there is more than an 'English language' view of IT.
6. Keep the social implications of the role of big business in education in the public domain.

RECOMMENDATIONS FOR THE IT AS AN ORGANIZATION

- Specify a realistic 'international entitlement' to IT for all students. It should be an evolving document that reacts to the constant changes that characterizes the IT sector.
- Lobby governments and big business for equitable provision. A global organization such as the ICP can be powerful voice.

- Challenge big business for financial aid or cost reductions to ensure equitable distribution of provision for all learners.
- Place the issue on the agenda of Council/Convention meetings.
- Link it to our support with the South African Forum, African Convention of Principals (ACP) and the South Pacific initiative.
- Make public statements about the two facets of teacher education and IT. Support teacher professional development in the area of IT.
- Make useful and applicable statements about IT and pedagogy. We should make sure our systems and schools are aware of it.

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