

Issues Related to Teaching with Information and Communication Technology in Algerian Universities

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Abstract:

Today there is too much talk on information and communication technology (ICT) which significantly permeates all areas of our modern life - from educational to professional. The present paper delved into issues linked to integration and implementation of information and communication technology (ICT) in Algerian universities. The major task of this article was the interest in measuring the degree of teachers' implication in the field under scrutiny and assessment of their ambivalent approaches of advocacy and resistance. The paper's final objective then is to contribute to research efforts on ICT implementation in Algerian universities.

ملخص:

في واقعنا اليومي هناك الكثير من الحديث عن تكنولوجيا المعلومات والاتصالات (ICT) التي دخلت جميع المجالات الهامة لحياتنا المعاصرة -- ابتداء من الجانب التعليمي إلى الجانب المهني . تناول هذا المقال القضايا المتعلقة بدمج واستخدام تكنولوجيا المعلومات والاتصالات (ICT) في الجامعات الجزائرية . امرت كثر المهمة الأساسية لهذا المقال على دراسة مدى درجة إشراك الأساتذة الجامعيين في الميدان الذي هو في قيد البحث وتقييم أنهجهم المتناقضة التي تراوح بين الدعم والممانعة . فالهدف الذي يصبو إليه هذا المقال هو المساهمة في الجهود المبذولة للبحث في استخدام تكنولوجيا المعلومات والاتصالات في الجامعات الجزائرية.

Résumé:

Aujourd'hui on parle beaucoup des technologies de l'information et des communications (TIC) qui imprègnent de façon significative tous les domaines de notre vie moderne – de l'éducatif au professionnel. Le présent article a examiné les questions liées à l'intégration et l'utilisation des technologies d'information et des communications (TIC) dans les universités algériennes. La tâche principale de cet article était de mesurer le degré d'implication des enseignants dans le domaine en question et l'évaluation de leurs approches ambivalentes de support et de réticence. L'objectif final à atteindre à travers cet article est donc de contribuer aux efforts de recherche sur l'utilisation des TIC dans les universités algériennes.

Introduction

Nowadays integrating information and communications technology (ICT) in education is a primary concern for governments worldwide. Educational experts and policy makers have favorably responded to the increasing necessity of this technology in “the global marketplace, and in classrooms, with programs designed to prepare young people to compete in the international information community” (de Ricjke, 2004). The need for effectively accessible learning opportunities has become one the urgent priorities for policy makers towards the use of ICT as an educational delivery mechanism par excellence for the 21st century.

1. ICT: A simple definition that holds an intricate web

Any approach to the educational role of new technologies must first provide a precise answer to what is meant by ICT. The term ICT updates the conventional term “information technology” (or IT) by accentuating the rapid convergence of technologies such as computers, telecommunications and broadcasting technologies. It also highlights the communication and networking capacity of modern-day information technologies. The term ICT pertains to a variety of technologies that encompasses computers, digital broadcasting, telecommunication technologies, such as mobile phones affording access to e-mail and other forms of computer-

mediated communication, and electronic information resources such as the worldwide web and CD-ROMs (OECD, 2006).

When analyzing ICT-based learning the study focuses on the appropriate definition which characterizes ICT as “learning with the help of information and communications technology tools. These tools may include the Internet, intranets, wireless networking, PC (personal computer) based technologies, handheld computers, interactive TV and also e-technology to support traditional delivery, for example using electronic whiteboards and video conferencing” (in OECD, 2006).

Different nations have initiated an appropriate policy to make information technology part of the compulsory curriculum for all of their high school students, who are now “expected to be able to collect, analyze, and communicate information” (BECTA, 2005). Algeria, recognizing the vital role that education will play in the country’s planned transformation to a center of technological innovation, has established strategies in creativity and innovation as part of its centralized curriculum. It is encouraging the use of ICT in universities by fostering training programs. Its national curriculum has identified within its top-level goals for higher education its need to prepare for the global setting. Its political engagement is a further support to this educational boost. As an illustration, Algeria is largely engaged to make an easy and speedy access to broadband Internet connections to enhance the quality of teaching and learning.

The objective of creating ICT programs is to support teachers and students in developing knowledge-building skills through student-centered approaches to teaching and learning. At the same time, these programs are designed both to gauge students’ ability to apply critical thinking skills — using technology to solve complex problems within a novel testing environment — and to support educators in teaching these skills to their students (Kennewell, Parkinson and Tanner, 2001). The Algerian Ministry of Higher Education has shown great interest in adapting this assessment and has associated strategies to the national higher educational system.

Algeria, meanwhile, faces a curricular challenge, despite its early recognition of the need for ICT education. While there is an attempt to ensure that every Algerian student has a quality education in the traditional basic subjects, other countries have revised and readjusted their educational institutions to respond differently to the challenge of learning for the 21st century. The argument can be made that if our educational emphasis is limited to traditional core subjects, our students may lack the skills that are essential to succeeding in the new global marketplace that places technology and communications at the center of work and learning.

In a knowledge-based world the sharing and expansion of learnedness and information are the key elements for economic, political and social growth. As a result of this the speed at which information and knowledge move around the world has been greatly accelerated by the rapid development of the Internet and communication technology (OECD, 2010). There is a common ground that ICT has unquestionably become a bridge everyone should cross to join the world of a qualitative education at different levels. In fact it is no more question of whether but how ICT is used in the curriculum. ICT is much more than simply a passing trend. It provides a real opportunity for educators of all levels and disciplines to rethink fundamental pedagogical issues close to learning approaches that students need to practice in classrooms. In this path it highlights the ways in which teachers can match in school the opportunities for learning provided in home and community.

In the developed countries, the technology under scrutiny has revolutionized the way work is done and the Internet has reduced the world considerably to the much talked about global village. Algeria has become tightly concerned with the use of ICT. Although it is expanding in its universities, its application does not really perform according to the expected norms. The use of ICT in our country in teaching subjects across the curriculum is developing but good practices are not common.

It is certain that with its embedding in educational fields, ICT has enlarged the scope of possibilities in higher education

(Abbott, 2001). It is totally ironical to overlook or at least to pretend to underestimate the effect of ICT on all sectors of society. Accordingly, the outstanding potential of ICT for higher education is tremendous and adepts in the concerned field have long recognized this (Sutherland, 2009).

Today the Algerian university serves as an important channel of research, evaluation, information transfer, and technology development. For this reason, its strategic planning should focus on the challenge of accessing current scientific knowledge through ICT integration and implementation. Channeling ICT in higher education is at a notably dynamic level in Algeria, which means that there are new developments and announcements taking place on a daily basis in this country.

To comprehend ICT issues in higher education, there are essential questions which need answers through the study of the role of each of the following directly involved actors:

1. The government policy toward the adoption of ICT with specific stress on the Ministry of Higher Education and Scientific Research's involvement
2. The University strategies to integrate ICT in Higher Education (faculty and administration)
3. Major university components and ICT utilization: Teachers & students
 - How is ICT currently being used in Algerian higher education and what are the strategies and policies related to this use?
 - What are the common challenges and hindrances faced by Algerian universities in this arena?

Algeria is spurring and fostering the utilization of ICT to boost the development process in general and the development of the educational system in particular, laying the foundations for an ICT policy framework along with an implementation strategy.

2. Government policy toward ICT application in the field of higher education.

Certainly, Algerian universities are not alienated from this global ICT utilization. They have launched the installation of ICT facilities in their campuses. The system receives an increasing

support as government provided funds into higher education which enables Algerian universities to acquire Web presence and Internet access for staff and students. Both government funding and policy support represent the major keys to address some of the ICT development issues in the university sector. Under the supervision of the Ministry of Higher Education projects have been initiated to encourage Universities to manage their teaching and research development. The aim behind this step is to allow these higher institutions to create their own ICT programs. As a result of this initiative, an ICT culture has begun to germinate in Algerian universities that have embraced this technology to a level where teachers and their methods are being positively promoted.

The official higher education representative has shown concern by generating mechanisms to facilitate the development of ICT-related human resources. With regard to the universally expanding knowledge and information society, the Ministry of Higher Education has been laboring on creating synergies among the various parts in the domains of infrastructure, training, and research as well as information systems and ICT. The essence of this ICT policy is to identify a national ICT working group which will be charged with formulating short-, medium-, and long-term action plans for integrating and implementing ICT.

At the same time collaboration has been set in motion with a number of international agencies to develop the ICT status in the country. The government is committed to establish and nurture a policy for the integration of ICT within the educational system at all levels. In sum, there are a number of positive steps that

have been taken in an attempt to target the quality of teaching and learning. Above all, the related strategies are expected to:

- Promote the development of ICTs resources.
 - Facilitate public-private partnerships to mobilize resources in order to support ICT use initiatives.
 - Establish a national ICT curriculum to enhance its application nationwide.
 - Promote distance education and virtual institutions, particularly in higher education and training.
 - Promote the establishment of a national ICT center of excellence.
 - Provide affordable infrastructure to facilitate dissemination of knowledge and skill through ICT teaching and learning.
- (Hamdy, 2007)

Despite the important steps, the government's permanent contribution to promoting such an ambitious endeavor is but one face of the coin that reflects the fundamental role which should be played by the different official channels as partners because its success and failure depend on the degree of their support, financially speaking. Yet, despite the promising projects the expected result has not yet been attained because of certain antagonistic academic policies which remain a serious hindrance. Is this part fully implicated? At this level, the answer is 'No'.

3. The University's strategies to adopt ICT in higher education

There is still an acute need for Algerian universities to properly and fully deploy ICT facilities for the advancement of knowledge. It is more than necessary to explore how universities in Algeria are utilizing ICT in the accomplishment of their educational performances. Algeria's higher education system must fully embrace ICT to make its educational institutions more competitive in the international global system. In fact, it is highly beneficial for the country to adhere to ICT revolution if

its wish is to assert itself and maintain international competitiveness. Therefore, the role of our political academic institutions is to detach themselves from their mere theoretical incentives. Their responsiveness resides in the creation of immediate and effective practical strategies to encourage Algerian universities to set out on large ICT implementation. This implementation is realized by “the commissioning of campus-wide local area network, digitalization of library materials, computerization of management information system, convenient e-learning program and a speedy Internet connectivity” (Wieland, 2005).

The mutation in teaching and learning which ICT has introduced into the classroom sets a serious challenge to all categories of teachers and students and it is their prerogative to search for ways and means of optimizing its potential for the common benefit. There has been legislature calls to teach students with ICT facilities to allow them to familiarize with the demand of information society. Furthermore, as it is required from teachers to have the skills necessary to collaborate, work with teams and share information across local and global networks and interact with others across cultural boundaries, the university has to sponsor its graduates who are experienced in and adept with the current technologies particularly computer-based ones to employ them in the future (Marcus, 2006).

The high expectation of the role of ICT in teaching and learning places a heavy responsibility on the present day university teacher to evolve good practice in utilizing ICT in higher education. Experts have recently studied several facets of ICT implementation in higher education and their findings are not without persuasive applicability to this study (Spratt & Lajbcygier, 2009; Sutherland, 2009). Their studies have emphasized the strong feeling that teachers in higher educational institutions in the developed countries were inclined to keep striving for excellence in applying ICT in teaching and learning. The process of ICT implementation has important aspects which include paying specific attention to preparation and planning, access to resources, shared engagement, and training and sustaining.

Although extremely limited in scope, there are good examples of Algerian universities where ICT is integrated and used by almost all staff working in all curriculum areas to enhance teaching and learning. Universities have computer labs and Internet access for faculty, students, and administration. Each university has its own ICT policy and does its best (but not at the desired speed) to accelerate the educational process and offer better learning opportunities despite flagrant shortcomings and the imbalance or disparity between the available allocated means and their really adequate amount.

However, all that glitters is not gold. Higher education in Algeria faces great challenges in response to changes in its internal and external environment and this includes the issue of widening access to educational technology, particularly how to integrate ICT into educational practices. The restrained access to information technologies and their requisite skills strengthens the inability to compete in the mainstream economy and mobility to participate meaningfully to civil society. Lack of access to information technology impedes success in academic pursuit, the skills necessary to work in knowledge driven society, and ability to prosper in modern society. The Algerian universities face a serious challenge to provide the leadership to transform the Algerian society and the economy through the relevance of its knowledge and skills.

In this regard it is essential to remember that to take part effectively in the global information age, Algerian universities have to enhance their ICT. They forcibly have to implement ICT as a tool in higher education management—to monitor students, faculty, budgets, etc — and in the classroom, to facilitate teaching and learning (Whitaker, 2001). The unhidden reality reveals that despite the various hindrances that stand in front of its concrete application on the spot (funding, duration, teachers and students' stand) ICT is the unique means for Algerian academics to participate actively in global research using the Internet, publish articles, and exchange ideas with their national and international peers. It is not in the best interest of Algerian universities to continue to graduate students who are not fully prepared for the information age. It is irrational that in the so-

called Information Age Algerian universities are “still graduating passive, solitary learners poorly equipped to cope with the explosion of information resources competing for attention” (Naidu, 2003).

4. ICT utilization and the global perception of teachers and students

By knowledge, University Teachers who are experts in their subject areas and masters of their craft in the classroom find themselves in an uncomfortable situation to relearn how to teach in a new environment with little or no support. Although it is relatively and comparatively risky to generalize the resulting view because of the specificities of each Algerian university, it is interesting to analyze the teachers' stand toward ICT and discover how faculty affiliation and teaching experience influence ICT application in the field. A major factor that influences technology use is university teachers' attitude toward ICT. Research and experience provide divided views and a variety of conceptions which in their turn affect the teachers' attitude and approach (Spratt and Lajbcygier, 2009). A considerable number of them praise the utility of this pedagogical technology. In addition, Algerian universities are presently experiencing with ICT for instructional purposes that can be considered a right step in the right direction. However, when assessing the way ICT can be used to support higher education, some teachers feel uncomfortable. It seems too often that teachers' opposing attitudes create barriers that impede innovations in the use of ICTs to enhance students' learning. For instance, teachers tend to view computers as audiovisual equipment and use them to support rather than drive or determine teaching and learning (Florian & Hegarty 3). Being 'ICT phobic', a category of university teachers hold inimical attitudes toward the use of technology in education due to the fear that technology may replace or displace them in the classroom. Others resist technology because they have no experience to use it, thereby feeling that technology is too fraught with technical difficulties and complications (Hoffman, 1996). Although these teachers have access to technology, they are reluctant to use it in their pedagogical practices because they

feel satisfied with their current instructional approach or traditional teaching status (Fisher, Dwyer, & Yocam, 1996), those who are labeled “chalk-addicted”.

However, most teachers are excited by information technology and are willing to integrate it into their classroom practices. In a study to definitely determine the attitudes of university teachers toward the use of technology in teaching, there is a common agreement that virtually a considerable percentage of faculty members believes that technology integration in teacher education is essential (Leask, 2001). As a result if there are an increasing number of university teachers who have positive perceptions of technology and its usefulness in educational settings, there is a prevalent and persisting negative attitude of teachers who have difficulties in embracing rapid changes that they face in utilizing ICT. It is irrational to refute that some attitude variables such as degree of enjoyment in using technology, motivation to learn to use technology and importance of technology to students' learning are significantly and tightly related to the use of computer technologies by the university teachers (Wieland, 2005). Explicitly, the use of ICT by the student is immensely measured by that of the teacher in the case of motivation. The two are forcibly interrelated.

By confirmation there are unfortunately teachers who either have no knowledge of ICT use in teaching or no interest in spending the minimum of time working within the electronic learning environment of the university. Conversely, what is clearly noticeable is that university teachers in their first few years of teaching (young teachers mainly with four or five years of teaching experience) are more inclined to use ICT than their older counterparts and consider ICT to be an essential classroom tool (Finley and Hartman, 2004). The reason may not be farfetched. The Internet is a recent phenomenon in the Algerian educational system and as a result older faculty members may need more time to adjust their old pedagogical practice. Teachers' unwillingness to use technological media is their relative satisfaction with current teaching techniques.

Since the use of the Internet for delivering instruction is growing in popularity university teachers should be convinced that technology phenomenon is unavoidable because it is globally recognized as an integral part of the curriculum and should be viewed as one of the curriculum components (Kenning, 2007). To be able to integrate technology into the curriculum, university teachers need to hold positive attitude toward ICT and be willingly disposed to learn how to employ it for various learning tasks. A university teacher who has developed positive mind-set toward the use of technology is more likely to have convenient stand to the use of technology for education, and also able to establish ICT networks, guide and mentor students on how to use those networks (Kenning, 2007).

This may make the students hungrier for current information in their disciplines not only to update their knowledge, but also to satisfy supervisors demand for practical research procedures (Andrews, 1997). In fact, it is a common practice for older faculty members to request their supervisees to browse the Internet for recent literature, especially in a situation where current books and journals are hardly available in Algerian universities' libraries.

5. Great expectations but ...

There is no doubt that the use of ICT in teaching and learning is now a recent policy issue in most of the universities in Algeria. The future looks bright and promising. However, a major stumbling block that might limit technology integration into the curriculum is the high cost of ICT facilities. Though government's funding of universities has improved considerably in the few past years, money available for technology integration may not be sufficient to meet the need of staff and students. In parallel, there is a technological literacy challenge for universities in Algeria. Such challenge requires that all students and their teachers be technologically literate in order to foster an enriched and more flexible learning environment.

A positive mentality toward technology integration is needed to mature in university education. Teachers and students can and will convincingly embrace ICT if they are provided with the requisite professional development and the appropriate sustaining.

Conclusion and recommendations

As admission to higher education expands and the traditional paradigms of study become less interesting because of their comparatively manifold imperfections, ICT process is presumably to figure increasingly as a positive delivery channel in higher education (Sutherland, 2009). Research has tangibly proven that ICT is more advantageous than the traditional modes where there are a great number of students to be taught. With the rise of students' enrolment in Algerian universities, ICT is likely to play more significant role in instructional delivery, particularly now that Algerian universities are supplying departments and faculties with ICT facilities and connecting them with the World Wide Web.

As an emerging educational phenomenon, ICT use has gained ground in academia not only amongst faculty members but also university students. It is noteworthy to observe then that despite their recent introduction to Algerian higher education, ICT is expanding in the universities. Faculty members and students alike are already using the Internet for academic purposes. If senior faculty members may be reluctant to use ICT, it is because they are afraid of the new phenomenon or are less inclined to change classical or traditional teaching methods as they may not see much advantage in using new technology (Sorgo, 2003). Nevertheless, both old and new faculty members are required to learn how to adequately include ICT into the curriculum and regular course design (Scheuermann & Pedró, 2009). Changes brought about by ICT in the academic environment require educational and training institutions to operate in different ways. ICT integration in the curriculum requires coordinated efforts and prolonged cooperation among faculty members and through individual and collective performance.

Two trajectories are traced to reach the success of professional development and practices: First, professional development activities need to shift from an atomistic to a holistic thinking to development that encompasses departmental, faculty, and senior university managers. Second, the emphasis needs to be on fundamental pedagogical concepts and practices and their end results in particular educational contexts (Starr). Professional training of teachers should be a priority for any successful integration of technology in the teaching curriculum.

With the findings of this study and to be globally implicated, it can be recommended that:

1. More funding should be dedicated to integrate ICT facilities so that no teachers and students are left behind or be given the opportunity to forward invalid excuses for not using ICT.
2. The universities should thoughtfully show more serious awareness by scheduling conferences, providing workshops and conducting seminars on the utilization of computers, software commodities, and Internet specifically devoted to the needs of higher education and also the needs of the older faculty members. This will help to change faculty members' mind which is reluctant, if not resistant, to have the requisite knowledge or skills to work with the new technologies.
3. It is not surprising to find that the young teacher generation uses technology more than the older one. This phenomenon is therefore not strange as researches have frequently demonstrated that most teachers, specifically those with longer years of teaching experience, are intimidated by technology and are comfortable with their own traditional teaching styles. It is required from university teachers to receive formal training and be constantly sustained by colleagues who are already well acquainted with technology and be assisted to learn how best to integrate technology in their teaching profession.
4. Teachers have to move beyond the simple utilization of the Internet to access resources, send e-mails to friends, or download course material as is the usual practice. They need to

substitute a new habit of information producers for that of information consumers and share resources with other teachers by virtually crossing their national boundaries and on a massive international scale. The exchange of ideas and long practical experiences with other peers in their academic fields contribute in many ways to arousing and developing their ICT curiosity, and mastering the use of this type of technology.

5. As the new way of teaching offered by ICT is today completely different from what most universities are used to, teachers have to grapple with some uncertainties. ICT as an educational means is now adopted to change the classroom into interactive and inquiring learning place. It is essential to be able to alter the learning environment which is traditionally based on a fixed one-way stream of information originating from teachers to an academic stage which is dynamic and where student-centered learning activities are enhanced. Since the new learning sphere which is brought by ICT is not similar to the traditional order, teachers will need to acquire competences and skills such as creativity, flexibility, logistic skills, administrative and organizational skills and collaborative skills.

References

- Abbott, Chris (2001). *ICT: Changing Education*. London: RoutledgeFalmer.
- Andrews, P. (1997). "Secondary teacher's perception of computer availability: A qualification study." *Journal of Information technology for Teacher Education*, 6(3), 321-335.
- BECTA (2005). *Using ICT to Support Students Who Have English as an Additional Language Guide for EMA Coordinators and Teachers*. Academies.
- de Rijcke, F. (2004, March). "Assessing ICT and learning". Paper presented at the 2004 CoSN K-12 School Networking Conference, Arlington, VA.
- Finley, Laura and David Hartman (2004). "Institutional charge and resistance. Teacher preparatory faculty and technology integration." *Journal of Technology and Teacher Education*, 12(3), 319-337.
- Fisher, C., D. C. Dwyer, and K. Yocam (Eds.) (1996). *Educational and Technology: Reflections on Computing in Classrooms*. San Francisco. Apple Computer, Inc., Jossey-Bass Publishers.
- Florian, Lani and John Hegarty (2004). *ICT and Special Education Needs: A Tool for Inclusion*. OpenUniversity Press.
- Hamdy, Amr (2007). "ICT in Education in Algeria." *Survey of ICT and Education in Africa: Algeria Country Report*. <<http://ddp-ext.worldbank.org/EdStats/DZApr07.pdf>>.

- Hoffman, Bob (1996). "What drives successful technology planning? Journal of Information Technology for Teacher Education," Vol. 5, Nos1-2, 43-55.
- Leask, Marilyn (2001). *Issues in Teaching Using ICT*. London: RoutledgeFalmer.
- Kennewell, Steve, John Parkinson and Howard Tanner (2001). *Developing the ICT-Capable School*. London: RoutledgeFalmer.
- Kenning, Marie-Madeleine (2007). *ICT and Language Learning: From Print to the Mobile Phone*. New York: Palgrave MacMillan.
- Marcus, Steven (2006). *ICT Fluency and High Schools: A Workshop Summary*. Washington, D.C. The National Academies Press.
<<http://www.nap.edu/catalog/11709.html>>.
- Naidu, Som (2003). *Learning & Teaching with Technology: Principles & Practices*. London: Kogan Page.
- OECD (2006). *ICT and Learning: Supporting Out-of-School Youth and Adults* by Organization for Economic Co-Operation and Development . OECD Publishing.
- OECD (2010). *Good Governance for Digital Policies: How to Get the Most Out of ICT: The Case of Spain's Plan Avanza*. OECD Publishing.
<<http://dx.doi.org/10.1787/9789264031104-en>>.
- Scheuermann, Frederich and Francesco Pedró (2009). *Assessing the Effects of ICT in Education: Indicators, Criteria and benchmarks for International Comparisons*. Luxembourg: Publications Office of the European Union.
- Sorgo, Andrej (2003). "Searching for Information on the Internet—What if your Students cannot Speak English?" *International Journal of Instructional Media*, 30(3), 315-319.
- Spratt, Christine and Paul Lajbcygier (2009). *E-Learning Technologies and Evidence-Based Assessment Approaches*. Kent State University: Mary Hricko.
- Starr, Paul. (1996). "Computing Our Way to Educational Reform." *The American Prospect*, Vol. 7, Issue 27, July.
<<http://www.prospect.org/print/V7/27/starr-p.html>>.
- Sutherland, Rosamund (2009). *Improving Classroom Learning with ICT*. Taylor & Francis Routledge.
- Whitaker, Beth E. (2001). "Association of African Universities Charts Goals for 21st Century." *International Higher Education Quaterly*. Spring 2001, Boston University.
- Wieland, Annemiek (2005). "Evaluation of the Use of Electronic Learning Environments: Perceptions of Lecturers and Students." *Recent Research Developments in Learning Technologies*. Rotterdam: FORMATEX.