

# ICTs and Examinations Management in the Multicultural Society

By

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## **Abstract**

Much research and activity have been dedicated to the subject of the usage of the Information and Communication Technology (ICT) in education and learning.

The dramatic multiplication of computer, information, communication, and multimedia technologies has been changing everything from the ways people work, to the ways they communicate with each other and spend their leisure time (Weiss, Nolan and Hunsinger). This technological revolution is often interpreted as the beginning of a knowledge or information society, and therefore ascribes education a central role in every aspect of life.

According to Swaminatham (2000), many developing countries remain poor largely because they had let the industrial revolution pass them by. They can ill afford to miss the information technology revolution. This revolution holds an immense challenge to educators as they need to rethink their basic principles, to implement the new technologies in creative and productive ways, and to restructure schooling, examinations and assessment to react constructively and progressively to the social and technological changes currently underway.

Parallel to the information technology revolution, significant demographic and socio-political changes are taking place all over the world. Migration patterns have created the challenge of providing for people from diverse races, genders, classes, languages and backgrounds to facilitate their success and enable participation in an ever more complex and changing world.

As new technologies are altering every aspect of our society and culture, we need to comprehend and make use of them both to understand and transform our world (Weiss, Nolan and Hunsinger). In particular, by introducing ICT at the point of examinations management, education could be reconstructed to make it more responsive to the challenges of a democratic and multicultural society.

## **Key Words**

Assessment, education, multicultural, ICT, examinations management.

## **1. Introduction**

In developing countries in particular, the metaphor of the information age has generated a whole set of wild speculations about the necessity of educational reforms that will accommodate new tools (Pelgrum, 2001). Educational planners in most developing countries have responded to the challenge by initiating national programs to integrate new technologies (computers, educational software, the Internet, and other computer-related technologies) in education. Doing so, these governments have added to their burden of debt “even though the costs are large and the payoffs modest” (Benzie, 1995, p.38).

An important reason for the frequently disappointing results in transferring electronic technology to developing countries is the inattention on the part of decision-makers to the end-users’ cultural conditions or their prevailing school culture, or both (Zhuang & Thomas, 1987; Benzie, 1995). It is widely accepted that culture, within a nation or an organization, shapes individuals’ perceptions of innovations that bear directly on their lives (Williams-Green, Holmes & Sherman, 1997; Chen, Mashhadi, Ang & Harkrider, 1999; Loch, Straub & Kamel, 2003).

Further to the reasoning offered above, Wells and Wells (2007) adds that many of these projects ultimately fail. There are many other reasons for this: technology may not be the appropriate solution in the first place, projects may be poorly implemented, equipment may be improperly used, there may be a lack of follow-up, stakeholders may not receive adequate training to support the program, or it may simply be difficult to create and sustain a project within a shifting social and political context.

The purpose of this paper is to highlight the challenges associated with the implementation of ICT in education and examinations management amidst a multitude of cultures. An attempt will be made to recommend guidelines to ensure smooth integration of ICT in a multicultural society.

## **2. Background**

With the introduction of computers, the precursor of our modern-day ICT, and the promising potentials of computer-based instruction and learning, many researchers and funding agencies were led to invest much of their resources to

investigate the possibility of computers replacing teachers in key educational and institutional roles (Eng, 2005).

Moreover, the 'Everest Syndrome' (cited in Roblyer et al., 1988, p. 5) also resulted in many believing that computers should be brought into the education arena simply 'because they are there' and the resultant perpetuation of the myth that students would benefit qualitatively from computers by simply providing software and hardware.

However, this initial enthusiasm and novelty effect began to diminish as the realisation that the fulfillment of the promises and beliefs was not forthcoming, became increasingly evident. Reynolds (2001) in his keynote presentation on 'ICT in Education: The Future Research and Policy Agenda' lamented that

*"... we are trapped in a cycle of classic innovation failure – a low quality implementation of a not very powerful new technology of practice produces poor or no improvement in outcomes, which in turn produces low commitment to the innovation and a reluctance to further implement more advanced stages of the innovation...that are more likely to generate the improvement in outcomes that would produce the commitment to ICT utilization".*

Using the analogy of an ecosystem, the school can be considered as a place where "dynamic interactions of species adapt to one another within the system" (Zhao, 2003). Zhao further emphasised the fact that any invading species may need to adapt to the ecosystem it enters but it can change the ecosystem and its native species. The introduction of ICT in education can be likened to that of the invading species to the ecosystem. There will be a time of adjustment and adaptation by the principals, teachers and students as each seeks to find its place in the new learning environment and interacts with the new technology.

### **3. Implementation of ICT in Educational Institutions**

We are aware today that in the foreseeable future, computerization of the system will be an on-going process and, consequently, that the social investments in ICT in education are not going to be reduced but probably will increase. Given the new (and constantly changing) nature of the technological revolution, the new knowledge, and the questions and doubts we have today, we have reached the conclusion that the systematic process of computerization of education should be accompanied by an on-going evaluation process (Aviram, 2003).

In fact, the ICT development in education generally passes through four phases, namely the emerging, applying, and transforming phases (UNESCO, 2002). The emerging phase is characterised by the purchase of computer equipment and software with educators and administrators exploring the use of ICT. This phase

also demands information gathering and planning, a phase which has often been overlooked in the urgency to implement ICT in schools. A key element that has been left out is the understanding of cultural perceptions of the end-users toward these new tools (Rogers, 1995). In the applying phase, ICT is used to replace existing tasks. In the infusing phase, it would have acquired a range of ICT and would have begun to explore new ways of using ICT for their personal and professional practice. Finally, the last phase is realised when ICT becomes an integral part of the education system. Thus, the impact of ICT will be felt as it permeates throughout the whole education system, changing the methodology of teaching, assessment and examinations management.

Freire's liberation theory (1970) stresses the importance of a dialogical approach to education. ICT can facilitate a pedagogical shift entailing an educational interaction between teachers and learners. ICT, if used correctly, can encourage and support a meaningful two-way, informational flow between educators and learners. Zhao (2003), it is pertinent that ICT contributes positively to the learning in schools and for it to be effective it requires the conscious effort of all the species in the school ecosystem to make it work.

#### **4. The impact of ICT on culture in the educational environment**

Multicultural education is a process of comprehensive school reform and basic education for all students (Nieto 1996). It challenges and rejects racism and other forms of discrimination in schools and society and accepts and affirms the pluralism (ethnic, racial, linguistic, religious, economic, and gender, among others) that students, their communities, and teachers represent. Multicultural education permeates the curriculum and instructional strategies used in schools, as well as the interactions among teachers, students, and parents, and the very way that schools conceptualize the nature of teaching, learning, assessment and examinations. Education is also directly influenced by government policies and is therefore constantly changing according to socioeconomic and political trends.

In their study to determine the impact of ICT on education, Aviram and Tami (2006) states that the cultural approach stems from another starting point: the recognition that the ICT revolution is a deep cultural revolution changing all modes and patterns of our lives and hence bound to lead to dramatic changes in education.

It is characterized by its recognition of two basic facts:

- ICT has a powerful defining impact on all important aspects of our lives and hence our culture (in terms used often in this context: it is a “defining technology”);
- The ICT revolution is a part of a group of intertwined revolutions that in the past twenty years have been transforming Western culture from a modern into a postmodern culture.

The cultural approach is quite rare in discussions on ICT and education, and those who rely on it are mainly academics, intellectuals, or futurists – unknown to many teachers and even to academics in the field (Aviram, Tami, 2006). The adherents of the cultural approach maintain that educationalists should be aware of these two facts, and strive to adapt the education system to the new culture.

The adaptation could take diverse routes: it is possible to judge the rising postmodern culture favorably and recommend radical changes in the education structure in order to render it adequate to the new “human situation” (a radical attitude). It is also possible to judge it unfavorably and opt for preserving and strengthening the existing structure of education (the conservative attitude). Bloom, 1987; Hargreaves, 1993; Hirsch, 1987; Perelman, 1992; and Postman 1992 focus on different aspects of the postmodern cultural changes, accord different weight in their thinking to education, pass different judgments on these developments, and reach different conclusions concerning the directions the educational system should take.

But they all recognize the deep all-encompassing changes we are now going thorough; they all diagnose ICT as being at least one of the major causes for these changes; and they all believe education should respond to these changes (although in very different and sometimes opposed ways).

In the field of education, it has been noticed that teachers’ reactions to technological innovations are mediated by their cultural perceptions (Watson, 1998; Harper, 1987). Cultural perceptions “embody group understanding based on common beliefs and values” (Jones and Maloy, 1996: p. 25). They are influenced by not only national norms and values but school regularities and practices as well (Hofstede, 1997).

A number of studies have shown that cultural perceptions toward different computer-related technologies are key factors related to both the initial acceptance of these technologies as well as future behavior regarding their usage (Al-Oteawi 2002; Chen, et. al., 1999; Loch, et. al., 2003; Straub, Keil & Brenner, 1997; Hill, Loch, Straub, & El-Sheshai, 1998).

Studying teachers’ cultural perceptions is particularly important in developing countries where ICT is not usually part of the culture. Due to its novel presence in society at large and in schools in particular, ICT may not be well received by developing-country teachers under various cultural influences.

Young people, who researchers have named digital natives (Prensky, 2001) and the net-generation, (Tapscott, 1999) tend to consider most digital technologies integrally connected with their lifestyle and their own cultures of learning (Jenkins, 2006). They do not hold an instrumental perspective of ICT (Castells, 2007). For older adults (digital immigrants) born well before the commercial sale

of digital technologies (Prensky, 2001), these same devices hold very different social and cultural meanings and values because these tools were not infused early on into their everyday ways of living (Tapscott, 1999).

We found past research reported educators feel uncomfortable, at times overwhelmed, and even threatened, by educational changes involving ICT (Bauer & Kenton, 2005). This discomfort has been exacerbated when these changes have “invaded their schools” without educator consultations (Bitner & Bitner, 2002).

In the headlong drive to incorporate educational technology in schools, the accommodation of the new tools has often taken precedence over the end-users’ cultural perceptions toward the media. Many researchers have cautioned about the current lack of attention to cultural beliefs and their impact on ICT adoption in developing countries (Loch, et. al., 2003; Hill et. al., 1998). Researchers suggest that force-fitting the culture to the technology can create an unfavorable climate for the acceptance of ICT in different organizations in the importing country. In fact, Hill et. al. (1998) asserts that, unless taken into consideration, socio-cultural factors may put ICT transfer at risk in certain developing countries.

It has often been noted that people who have not been quite influential in the design and development of ICT would prefer a localized version of these technologies (Damarin, 1998). This is quite explicable since the current computer technologies fall short of serving the cultural and learning needs of “other non-dominant cultures” (Roblyer et. al., 1996: p. 9).

This demand seems to resonate with Fodje’s (1999) argument in the International Conference for Technology in Education:

*“What the world needs today is not talent in producing new technologies but talent in understanding the impact of technology on the society and individuals...Educational programs in the third world heretofore have been designed around the Western ideals. These need to be reworked to reflect the indigenous cultures and promote human values while at the same time producing the talent for ‘controlled’ technological advancement.”*

Obviously, the creation of local computer applications and software may help in the initial cultural acceptance of ICT as well as future behavior regarding its usage. Given the need to understand ICT within the constantly changing social and cultural contexts of local and global societies, it is misleading when digital hardware, software and infrastructure are reduced to being called a tool (Amtzen, Krug and Wen, 2008). But because all tools require someone or a collective group to produce and use them, the social and cultural contexts of ICT should not be overlooked in educational situations (Vygotsky, 1978).

Thus when it comes to educational and examinations policy, developments surrounding ICT must be considered within a broad and integral perspective. The educational implications of implementing ICT in examinations management are far greater than the mere instrumental exploitation of technical opportunities. It is all about a new, digital dimension; a new and - until recently - undreamt-of medium with which existing culture must seek to interact and in which new culture is being generated. The new “e-culture” is also more than just a new medium. Digital technologies and the Internet are opening the door to new forms of expression, changing the roles played by educational institutions, and placing the audience and users increasingly centre stage.

According to the Netherlands State Secretary for Education (2003), there are three aspects or guises of e-culture:

- (1) Firstly, there is the instrumental application of ICT within the existing framework. This will be referred to as ‘digitisation of information’.
- (2) Then there is the aspect of educational innovation, where digital technology gives rise to new forms and combinations of content and presentation.
- (3) And finally, there is the fact that digitalisation can prompt educational organisations and examiners to take on new roles, adopting new tasks and work methods.

Educational institutions will increasingly be confronted with all three guises of e-culture, partly because changing social realities demand this, and partly because the added value of digital developments can only be fully exploited when taking account of all three guises of e-culture.

#### (1) Digitisation of information

The instrumental aspect of e-culture is currently the most dominant, with digital technology and the Internet being incorporated into the existing activities of educational institutions. This technological aspect of e-culture now has a place in almost every organisation. ICT enables institutions to simplify and improve their primary activities. This goes for all educational domains, although not always in the same way. By digitising information and presenting it in a digital format, educational organisations can conduct their activities and render services faster, better, more efficiently, and sometimes at a lower cost.

#### (2) Educational innovation

Digitalisation also gives rise to new forms of expression, reflection and exchange within and between existing educational fields. This second aspect of e-culture has more to do with imparting meaning, than with information technology. Digital technology has immense potential in terms of intermediality (the combination of text, images and sound), intertextuality (hyperlinking), and interactivity (interaction with users), which in turn presents great opportunities for educational innovation, new content and new forms of expression - on condition that these opportunities are explored and developed in deliberate ways.

The main opportunities for educational innovation lie in (a) the potential to link, share and make information accessible to the public; (b) the emergence of crossovers and cross-fertilisations between disciplines and domains; and (c) medium-specific innovations that give rise to forms of expression and reflection that are unique to the digital domain. These three developments, which sometimes overlap in the digital domain, lie at the heart of the transition 'from ICT to e-culture'.

a. Information sharing

One of the key features of digitalisation is that it enables educational organisations to more easily share content and information with each another and jointly make it accessible to users, such as researchers, students, teachers and the general public. Institutions are able to share their knowledge and collections with one another via the Internet, via search engines and hyperlinks. Moreover, the content generated by one party may be placed in a new context on the website of another party, thus adding new meaning or making it accessible to a different or larger audience. The Internet also presents greater opportunities for contact with users. In principle, users could link their own knowledge and collections to those of professional organisations.

It goes without saying that this sharing of information does not stop at national borders.

b. Crossovers

The new technology stimulates the blending of various forms of presentation. Many educational organisations have begun using digital media, not only as an extra platform or distribution channel, but also as a means to get the general public involved as an information provider or producer. This again fuels the rise of a new and potentially endless variety of forms of expression, reflection and exchange. It makes the boundaries between disciplines and domains more permeable and gives rise to new crossovers.

c. Medium-specific innovation

This brings us to medium-specific innovation in the digital domain. In short, the advent of new forms of expression, exchange and reflection that could not exist outside the digital domain. In such instances, the potential of the digital domain is fully exploited and the boundaries of the different media are intentionally explored and extended.

(3) The changing role of educational organisations

The dynamic nature of e-culture lies not only in the way digital media and technology give rise to innovative forms of examinations management, but can also be seen in the way digitalisation changes the practical realities of

educational organisations in terms of their internal functioning, as well as their position in the field. This third aspect of e-culture is the furthest removed from the technological aspect, from ICT, even extending beyond the digital domain.

We are referring to the broader process of change that organisations undergo when they opt to set a new course facilitated by ongoing digitalisation. The underlying idea being that organisations which begin making use of the Internet and digital media, ultimately also start functioning differently. Gradually, educational organisations and teachers will be required to adopt new skills and knowledge, other work methods and organisational structures. They will have to reassess their role in the education sector and society at large. In this case, e-culture is a means of thinking, acting and observing.

This fundamental shift may be explained as follows: in the digital age, the value of many educational institutions lies increasingly in their role as mediators between networks that produce education and impart meaning. Until now, institutions were primarily starting points or end points; they were makers, owners or publishers of end results. However, institutions are now also increasingly taking on the role of intermediaries in the process of imparting meaning. They will progressively find themselves contributing their knowledge and content within in an educational arena where a host of highly diverse players are in action, including institutions from outside the sector, as well as the audience or users.

In this guise, digitalisation is a crucial factor in the changing role of educational organisations. The reason being that the added value of such organisations within the virtual domain is highly dependent on the extent to which they are able to make knowledge sharing, crossovers, and structural cooperation part of their 'core business'. Digitalisation in this guise implies the redesign of their own activities within the e-cultural context.

## **5. Guidelines in implementing ICT in education whilst considering the effect on a multicultural environment**

Examinations management seems like (and often is) a technical exercise, designed by and used by technical experts, policy makers and educators. In fact, like all numerical data of this kind, the ultimate purpose is to provide useful information to decision makers. It includes an assessment of results at the end as related to the original objectives set for the project—but only if you plan for it in advance.

The examinations management process should be an integral component of any planned ICT in Education program and should be factored into planning before a project starts. This means that local ownership and accountability are crucial if learning is to be gained and built on for future activities. Disseminating the insights gained from examinations management should form part of the learning

process. All major stakeholders should be identified and involved in making examinations management decisions. This will avoid possible problems with buy-in and commitment later in the process.

There are a number of major stakeholders in ICT integration in schools. Jhurree (2005) lists three such stakeholders as being educators, school administration and parents. They form the cogs of the wheel that drives the ICT integration engine, and their involvement at the outset cannot be underestimated. Failing to take this into account may result in either slow or no integration. Changing the attitudes of educators toward ICT education is also crucial.

Educators are at the forefront when it comes to influencing the teaching-learning process inside the classroom. It is therefore important to change their attitude towards an ICT-based assessment and examinations environment. Miller (1988) suggests that school administrators should encourage educators to develop a positive attitude about ICT and to have minimum skills in using ICT for educational purposes.

Administrators should be careful in the process of changing educator attitudes. This process should be conducted so that educators do not feel threatened in any way due to the introduction of ICT in the education system and such that they learn to appreciate the virtues of ICT in education. They should be given positive accounts of how ICT can make their duties easier and more pleasing. Also, they should feel secure from the fear of job loss due to the integration of ICT. They should be reassured that their jobs will not be threatened in any way by ICT, and that ICT will rather complement their educational endeavours.

Another step towards securing the trust and commitment of educators to the ICT integration endeavour is their inclusion in the decision-making process alongside the policy makers as from the start (Cuban, 2001). Education reform has too often followed a top-down path whereby educators have not been involved in decision-making. Decisions have been made for them by some higher authority without taking on board their opinions and suggestions (Jhurree, 2005).

Educators tend to feel that policy makers do not understand the educational system dynamics and hence they do not know what works and what does not at the grassroots level. Consequently, educators tend to resist the implementation of such decisions. Therefore, involving educators, and school administrators, and the community for that matter, maximises their sense of belonging to the integration process and hence their collaboration to the whole endeavour.

Educational leaders and planners are therefore faced with the challenge of (1) ensuring that the introduction of ICT into the classroom is managed with great care so that the potential benefits are realised, while the dangers are eliminated or minimised; and (2) optimizing the benefits of such large investments. Consequently, there is a need for careful planning.

## 6. Summary

The oversimplification of complex digital technologies fails to convey the personal, professional, social, cultural, political, and economic significance, meanings, and values emerging as a consequence of the ubiquitous presence of ICT in societies (Walton & Banaji, 2004)

Weiss, Nolan and Hunsinger (2002), highlights the following points to consider when applying different ICT's in multicultural learning:

- Do structures in schooling systems privilege certain people or groups and if so how and what are the implications thereof?
- How and why do social class, gender and religion affect student's education experience and outcome?
- What is multicultural education and what should be its goals?
- What are the roles and responsibilities of educators in multicultural societies?

Adequate thought must be given to who the key target groups will be in implementation - and what expected outcomes are desired for each group. Finally, implementation costs should not be underestimated. If the outcomes of implementing ICT in examinations management are seen as useful and add to the future improvement of education, the allocated funds will be well-spent and are likely to provide major benefits in terms of better outcomes and impacts.

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