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### The Role of ICT in Education: Why to integrate ICT

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#### ABSTRACT

The present paper intends to overview some basic concerns and developments in the educational systems of the current century highlighting how remarkable role information communication technology (ICT) plays in today's education and finally comes up with some justifications for the integration of ICT into the teaching and learning process.

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#### Keywords

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#### Introduction

##### The Status of Education in 21<sup>st</sup> Century

Education is never restricted to instructing the learners based on an already determined plan and curriculum for a particular school grade. Undoubtedly, there are much more objectives, goals for education. Education is changing to be a powerful means of stopping poverty and founding a modern population. The entrance of information technologies into all aspects of life, involving education and schooling can be considered as a characteristic of modern societies. To put it in a nutshell, the modern technologies have been identified as important tools playing remarkable roles in evolving and upgrading the teaching and learning conditions.

From the school to the work, the world in the 21st century is undergoing a continuous change. Nowadays, the world and its people, economies, and cultures have become closely related, through the Internet, and modern technologies, such as computers and mobile devices (Apple, 2008). It should be noted that what involved the old generation of students, might not engage the new generation due to these ongoing changes (Apple, 2008). Modern technology can motivate learners to accomplish in their studies (Borthwick & Pierson, 2008). Students have to be aware and proficient in using technology in order to use their creativity powerfully in the 21st century.

Therefore, it is essential for educators to provide students with the opportunity to develop technical literacy and proficiency skills (Borthwick & Pierson, 2008; Clausen et al., 2008; U.S. Congress, Office of Technology Assessment, 1995). Today, in the global village, students across different parts of the world must campaign with their counterparts, having to develop new knowledge and skills in order to accomplish and tackle with any problems they face in the current century (Solomon & Schrum, 2007).

According to Grove (2007), employing technology devices in the class can remarkably influence learning. For instance, online collaboration instruments can equip students carry out learning tasks in their ways (Smith et al., 2005). Technology can provide students with thousands of opportunities empowering them to keep learning and finally reaching to new places.

Furthermore, learners' participation goes up by technology more intriguingly (Ullman, 2007). Notably, teachers well-organized planning and arrangement is necessary to meet learners' needs in the educational situations (Carty & Phelan, 2006). Teachers need to bring computer technology into their instruction in order to equip students with a learning experience which empowers them with the technological skills required to succeed in the global job market (Bybee & Starkweather, 2006).

It has been proposed by the North Central Regional Educational Laboratory (NCREL) (2003) that policymakers and educators should take into account four main groups of skills required by students within academic context including literacy of digital century, inventive thinking, effective communication, and high productivity. In addition, six key elements to promote learning in the current century has been suggested by the Partnership for 21st Century Skills (2004) involving highlighting main subjects, emphasizing learning skills, improving learning skills through applying 21st century tools, teaching and learning 21st century content in the context of the current age, and employing 21st century assessments testing 21st century skills.

Therefore, it can be concluded that students of the current age need to be technologically literate and capable in order to accomplish in the school; that is to say, without technology it is almost impossible to meet students' needs in this century.

#### The Integration of ICT into Education

A great transformation has taken place in changing the life of modern society from the age of industry to the information age leading to a quick development in information and communication technology. The educational system in the industrial age provided students with "basic facts and survival skills they would need for jobs in industry and agriculture" (Beekman & Rathswohl, 2002, p. 476). However, this model of education is not adequate in the current century to continue with the change brought by information. Thus, all curriculum developers and policymakers around the world are struggling to adjust their educational systems with the recent developments in information age.

Many experts in education think that employing technology in the schools develop novel social, cultural, and teaching experiences making the teachers struggle in their technical abilities, and expertise (Schrum, 2005; Levin & Wadmany 2008).

There is abundant proof in literature highlighting the positive impact of technology integration on the progress of students (Cantrell, Leverington & Taylor, 2007; Davies, 2011). Researchers have stated that students' factual and conceptual knowledge goes up as the technology interactivity level rises (Cantrell, Leverington, & Taylor, 2007) In addition to acquiring knowledge in main disciplines when the technology is infused in education, learners gain the required skills needed to be productive and competitive in the workplace (Davies, 2011; Hew & Brush 2007). Schools go on to strive towards the integration of technology, though today's technology equips educators to make use of the resources and organize real and virtual educational experiences which improves experiences in conventional classes. Certainly, technology is a key component of education. Teachers should be fully aware of their subject matter, together with knowing the way to bring technology into education (Groff & Mouza, 2008; Saade, Tan, & Kira, 2008).

Infusing ICT into education is a rational reaction to the needs of the information age in making students ready for coming academic profession or employment which is highly technology centered (Gura & Percy, 2005). According to Beekman & Rathswohl (2002), the schools in the information century should provide students with (a) technological familiarity, (b) literacy, (c) mathematics, (d) culture, (e) communication, and (f) learning how to learn. However, education should teach students how to learn. In other words, schools must teach students how to think and learn aiming to make learning a continuous and permanent procedure and prepare students with skills to adapt themselves to unpredictable revolutions in their lives.

ICT is employed to improve learning and change students into creative thinkers. Students will acquire the ways of meeting human needs the ways technology influences the learning process and communication through using ICT. It paves the way to develop individuals through helping students to take roles for their learning and by making interesting chances available for them to exploit imagination and curiosity to innovatively express themselves. Furthermore, the use of ICT reduces teachers' amount of work. For instance, electronic recording of data, central storing, and sharing it with peers is crucial in decreasing the burden of work.

As means of ICT, computers and Internet provide opportunities for students to generate critical thinking skills and problem-solving techniques in real-life environments. Students should receive quality instruction for successful learning. More notably, Internet has changed the way teachers teach and students learn increasing motivation, communication skills and even writing skills in students (Joo, Bong & Choi, 2000).

The role of technology integration has been classified by State Educational Technology Directors Association (SETDA) into three parts (SETDA, 2007). The first role of technology integration is exploiting technology for improving 21st century skills. Students require knowing the ways of communication and collaboration in a challenging workplace, and being capable of examining and tackling sophisticated difficulties. The second role is to advocate innovative teaching and learning employing technology. Students should be involved in learning being challenged with careful and pertinent activities. Finally, the third role is establishing rigorous education support systems utilizing

technology. Administrators, and more specifically, teachers, should possess the technology tools and receive specific training to offer a modern education. These three roles of technology integration indicate the way teachers must integrate technology into their curriculum objectives.

There are a number of advantages for including ICT in instruction in educational contexts. First, it can develop more individualized learning. Second, it provides students with variety in choosing time (day, night, weekend) and place (home or class) for their learning. Third, ICT makes interaction possible. Next, it can pave the way for comprehending abstract information through implementing different modes including images, voice, and video. Another merit of using ICT is that it provides immediate feedback. Ultimately, it gives learners time to practice more for achieving correct answers (Richards, 2005).

Peck and Domcott (1994) mentioned ten justifications for the implementation of technologies in schools. As the first reason, they discussed that technology helps teachers to make instruction specific to the needs of individuals enabling students to learn and develop at their own pace in a relaxing environment. Second, they pointed out that learners can be capable of acquiring, assessing and communicating information through technology. Third, students' thinking and writing quality can also increase by using word processors. The fourth reason is that students' critical thinking can also develop through technology enabling them to categorize, examine, explain, improve, and evaluate their own work. As the fifth reason, they outlined that technology can motivate learners' artistic expression. Learners can get access to resources outside the school through using technology. Technology can provide more interesting and innovative learning experiences for students. Because technology will become a remarkable component of students' life, they feel at ease using computer. Students are provided with more chances to do meaningful work by technology, and finally, schools can improve their productivity and efficiency through employing technology.

Waxman and Padrón (2002), seeking out the effect of instructing technology on students who would potentially fail, discovered a number of merits for instructional technology on these at risk students. They found that technology was motivational and non-judgmental. In addition, it could make learning personal to the specific needs of each student and manage the instructional pattern to cater for students' needs and learning pace. Furthermore, instructional technology improved students' autonomy and self-reliance and could give immediate feedback. The students could acquire feeling of personal responsibility and management. Technology instruction was not threatening to students and it could provide students with a fertile linguistic environment. Moreover, instructional technology decreased the teacher's role of authority and reduced students' embarrassment in class for cases in which they cannot answer.

ICT has the potential to be made individualized to suit the particular needs of students, and a large number of its programs are appropriate for various groups of students. Pedro (2005) stated that ICT can make education flexible in relation to time and place. He suggested that a lot of computer programs can provide programs to tailor individual needs and features. He further highlighted the usefulness of different computer programs made for educational uses such as simulation, tutorials, and presentational use of audio and video for students taking the learners' needs and interests into account.

## Conclusion

Therefore, it can be concluded that technology is the cornerstone of education. Teachers not only need to have adequate knowledge of their specific fields, but also they should know the ways of integrating technology for instruction (Groff & Mouza, 2008; Saade, Tan, & Kira, 2008). Today, technology is at the outset of its full development within all the branches of life. A glance at the body of research conducted on implementing ICTs in education as an asset validated that the employment of ICT has had a considerable impact on the teaching and learning process; that is to say, ICTs had demonstrated to be an influential means for educational objectives developing and changing how students learn and teachers teach.

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