

The Paramount Role of ICT in Education: A Focus on ART Instruction



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Abstract: The advent of computer and ICT thereafter has made a tremendous effect in all aspects of human endeavor. Learning and teaching at all levels have been influenced by ICT conspicuously. Art instruction has not been an exception either. The purpose of this paper is to discuss the roles of ICT in education especially in art instruction. Accordingly, this paper reviews the roles of ICTs and the promises to education systems especially to art instruction. Then, it discusses how artists took up advances in technology and the formation of the polytechnics, as a tool, working method or metaphor for practice.

Key Words: Art instruction, Computer, ICT.

INTRODUCTION

Information communication technologies (ICT) at present are influencing every aspect of human life. They are playing salient roles in work places, business, education, and entertainment. Moreover, many people recognize ICTs as catalysts for change; change in working conditions, handling and exchanging information, teaching methods, learning approaches, scientific research, and in accessing information. ICTs are making dynamic changes in society. They are influencing all aspects of life. The influences are felt more and more at schools. Because ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is, forcing schools aptly respond to this technical innovation.

Tinio [1] states the potentials of ICTs in increasing access and improving relevance and quality of education in developing countries. Tinio further notes, the potentials of ICT as follows: ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for business and the poor.

Watson's [2] states that ICTs have revolutionized the way people work today and are now transforming education systems.

Even though ICTs play significant roles in

representing equalization strategy for developing countries, the reality of the digital divide- the gap between those who have access to, and control technology and those who do not, make a huge difference in the use of ICTs. This means, that the introduction and integration of ICTs at different levels and various types of education is the most challenging undertaking. Failure to meet the challenges would mean a further widening of the knowledge gap and deepening of existing economic and social inequalities among the developed and the developing countries.

The complexity and rarity of computers at the time meant that any art form based around them was bound to be a specialized branch of art, highly dependent upon support and funding to exist, not least because of the expensive, large-scale nature of much early equipment and the resulting technical expertise required to operate it. Due to these unique issues of access, both artists and persons from a technical or scientific background created work during this pioneering period. The beginnings of the application of technology to the arts took place mostly in provincial institutions, within the context of design and the applied arts, with a few exceptions, rather than fine art, which we might associate with a metropolitan institution like the Slade. However, a brief look at the founding history, indicates its sympathy toward new art forms. The foundation was made possible by a bequest from Felix Slade in 1871, who envisaged a school where fine art would be studied within a liberal arts university according to The Quality Assurance Agency for Higher Education Report. The first Professor of Fine Art was Sir Edward Poynter [3] Trained in Paris, he introduced the more open and creative methods employed by the French academy system, which had less distinction between fine and applied art, thus paving the way for artists to engage with the modern world. The Slade has a long tradition of educating fine artists including, around the turn of the century, Wyndham Lewis, the most prominent of early British modernists. Hamilton, Eduardo Paolozzi and other members of the Independent Group had attended the School in the 1940s. Perhaps tellingly, Coldstream, educational re-former

as well as artist and filmmaker in his own right, was Professor of the Slade during this period (1949-1975).

The pioneering computing curriculum at the Slade was founded in 1972 by Malcolm Hughes as Head of Post Graduate. As a member of the Systems group from Chelsea School of Art, Hughes employed various kinds of frequently mathematical system to provide ordering and structural principles to his work, predominately realized in painting [4]. This Renaissance concept of the arts postulated that artists could be scientists too. Hughes was also a great enabler and facilitator who realized that he could get more money into the Slade by broadening its base. He wanted to make Fine Art part of a real University and believed the Slade could play a greater role and thereby gain respect within the University. He had a vision to try and do something British, but coming out of the European vision of arts and sciences and the Bauhaus example. Filmmaker Chris Welsby joined the course in 1973, because he “wanted to be part of the University” [5]. In fact, Welsby did some work with the astronomy department. Also during this period, Viner created animated films using the University College London mainframe, which could output direct to 16mm film.

What is ICT?

ICT refers to the computer and internet connections used to handle and communicate information for learning purpose.

E-learning: - is a learning program that makes use of an information network- such as the internet, an intranet (LAN) or extranet (WAN) whether wholly or in part, for course delivery, interaction and/or facilitation. Web-based learning is a subset of e-learning and refers to learning using an internet browser such as the moodle, blackboard or internet explorer [1].

ICT in Education: the benefits

The uses of ICT is making major differences in the learning of students and teaching approaches. Schools in the Western World invested a lot for ICT infrastructures over the last 20 years, and students use computers more often and for a much larger range of applications [6].

Several studies reveal that students using ICT facilities mostly show higher learning gains than those who do not use. For instance, Kulik’s [7] finding across 75 studies in the United States showed the following. Students who used computer tutorials in mathematics, natural science, and social

science score significantly higher on tests in these subjects. Students who used simulation software in science also scored higher.

In addition, the use of ICTs in education also shifts the learning approaches. As put by (Bransford, Brown, and Cocking, 1999) cited in Volman [6], there is a common belief that the use of ICTs in education contributes to a more constructivist learning and an increase in activity and greater responsibility of students. This limits the role of the teacher to supporting, advising, and coaching students rather than merely transmitting knowledge. The gradual progress in using computers changes from learning about computers, to learning computers, and finally to learning with computers [6]. With respect to introducing ICT technologies in schools, Olson [8] advises to explore the following questions as bases for in service teacher education. These are (1) how can the theoretical ideas tested in practice? (2) What does practice say back to these theoretical ideas? (3) How is useful negative feedbacks obtained? (4) What might be substantive talking points about the new processes? What is practical from a classroom perspective? (5) What does talking about the new say about the nature of existing technology? Is it adequate? (6) What scaffold needs for the next stage?

On the other hand, teachers’ reluctance to adopt innovations need to be seen in the context of existing technology and commitments. Fullen (1989) cited in Watson [2] states that change or improvement can happen at schools if teachers understand themselves and understood by others. For instance, many teachers are currently not in a position to make informed judgements on ICTs to support their teaching goals. Clearly a variety of factors still do make using ICT in the curriculum problematic [2]. Because of this, the influence of ICT did not bring revolutionary changes at schools. For instance, the National ICT survey in the Netherlands shows that most primary-school students use computers less than once a week and there are still many secondary school teachers who do not use ICT at all [6].

In recent years however, there has been a growing interest to know how computers and internet can best utilized to improve effectiveness and efficiency of education at all levels and in both formal and non-formal settings. As there is a shift of theories explaining learning processes, ICTs become handmaiden for learning activities. Voogt’s [9] description on the major roles, distinguished ICTs as an object for study,

aspect of a discipline or a profession, and a medium of instruction.

As a medium of instruction, ICTs fit to realize and implement the emerging pedagogy of constructivism [9]. Moreover, Voogt differentiated between traditional learning setting and constructivist approaches. The former considers learning as transmission of knowledge to students, which is the sole responsibility of the teacher. On the other hand, the constructivist approach considers learning as authentic and learner centered. ICT, the computer for example is a great help in the constructivist approach, where one can design simulated and individualized learning environments to students.

ICTs are exerting impacts on pedagogical approaches in the classrooms. Their contribution to changes in teaching practices, school innovation, and community services is considerable. A research review by Kozma [10] suggests three significant concerns of consideration regarding ICTs impact on education. Firstly, student outcomes such as higher scores in school subjects or the learning of entirely new skills needed for a developing economy. Secondly, we should consider teacher and classroom outcomes such as development of teachers' technology skills and knowledge of new pedagogic approaches as well as improved attitudes toward teaching.

Finally, one has to consider other outcomes such as increased innovativeness in schools and access of community members to adult education and literacy. The table below presents comparison of the traditional pedagogy and the emerging pedagogy of constructivism that fits to the use of ICT (particularly the computer and internet) to increase student involvement in learning. Emerging pedagogy is the name given to the new view of constructivist learning when compared to the relatively long existing behaviorist view of learning.

Tinio [1] describes each of the pedagogic aspects in the table above in terms of implication for ICT use as follows.

Active learning: - ICT-enhanced learning mobilizes tools for examination, calculation and analysis of information in order to provide a platform for student inquiry, analysis and construction of new information. The learners therefore, learn as they do and, whenever appropriate work on real-life problems in-depth. Moreover, ICT makes the learning less abstract and more relevant to their life situations. In contrast to memorization-based or rote learning, that is the feature of traditional pedagogy; ICT-enhanced learning promotes increased learner engagement. ICT-enhanced learning can also

be 'just-in time' learning that the learners choose what to learn when they need.

Collaborative learning: - ICT-supported learning encourages interaction and cooperation among students, teachers, and experts regardless of where they are. Apart from modeling real world interactions, ICT-supported learning provides opportunity to work with students from different cultures, thereby helping to enhance learners teaming and communication skills as well as their global awareness. It models learning done throughout the learner's lifetime by expanding the learning pace to include not just peers but also mentors and experts from different fields.

Creative learning: - ICT-supported learning promotes the manipulation of existing information and the creation of real-world products rather than the duplication of received information.

Integrative learning: - ICT-enhanced learning promotes a thematic integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice, which characterizes the traditional approach.

Evaluative learning: - ICT-enhanced learning is student-directed and diagnostic. Unlike static, text or print-based education, ICT-enhanced learning recognizes the presence of different learning pathways to explore and discover rather than merely listen and remember.

CONCLUSION

ICTs have been in limelight recently since as mentioned they are promoting changes in various areas such as working conditions, exchanging of information, teaching-learning approaches and so on, but one area in which the impacts of ICT is significant, is education. These include hardware & software technologies and facilitate teaching learning process. Using ICT learners are now able to participate in learning communities throughout the world. ICTs are making major differences in the teaching approaches and the ways students are learning. They may learn collaboratively, share information, exchange their learning experiences and work through cooperative activities in virtual learning communities; In fact, ICT-enhanced learning environment facilitates active, collaborative, creative, integrative, and evaluative learning as an advantage over the paper-pencil method and is becoming more appropriate in the realization and implementation of the

emerging pedagogy of constructivism that gives greater responsibility of learning for students. In addition, the major promises of ICTs unquestionably focus on training teachers in new skills. Now teacher is not at the center of the instruction and sole source of information as in conventional classrooms. Namely, teachers should be able to introduce innovative pedagogies into the classrooms, invest on ICT infrastructure for schools and create networks among educational institutes, improve overall standard of education by reducing the gap in quality of education between schools in urban and rural areas, initiation of smart school with objectives to foster self-paced, self assessed, and self-directed learning through the applications of ICTs. To sum up, the notion of working with computers as an artist is quite groundbreaking and proactive; therefore, there is much to be done by teachers, administrators and researchers to shed a new light on it.

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