
SOCIETY, EDUCATION AND TECHNOLOGY: THE NEXUS

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Since early history, mankind has devised means to help people learn in ways that are easier, faster, surer, or less expensive than previous means. In the past two decades for instance, Information and Communication Technologies (ICT) have pervaded the world and fostered modern means of education in our current society. The Internet, through its both global and real-time interactive infrastructure, provides new opportunities and challenges to the present society. Technology is a new tool in education that constantly changes and offers new opportunities for teaching and learning. Even so, old habits are hard to change.

Typically, the effects of technology are complex, hard to estimate accurately and likely to have different values for different people or society at different times. Its effects depend upon people's decisions about development and use.

Opportunities and Challenges of New Technologies on the Educational System Technology and Education

In classroom teaching, technology changes the learning environment. It enables teachers to become guides as well as facilitators. It also permits students to become self-directed learners who collaborate with their friends and technology. Technology helps deliver lessons more effectively if used appropriately according to students' needs with the teacher serving as facilitator and mentor.

Teachers are important elements in the education system. Since they are responsible for the development of students, teachers need to be aware of ethical responsibilities. Teachers should be good role models for students because students learn by examples. Being a good model requires caring, compassion, sensitivity, commitment, the pursuit of truth and respect of self and others, honesty, trustworthiness, integrity, equality, impartiality, fairness, and justice (Bodi, 1998). Teachers should teach students the possible harm of not following the ethical rules while using the internet, and guide them through their use of the internet at a level appropriate to their age. This guidance should allow students to ask themselves:

- Is it illegal?
- Does it violate ethics codes?
- Does it bother your conscience?

- Does it look as though someone is likely to be harmed? (Bodi, 1998)

The responsibility of teachers should be to:

- Teach students not to use or pass personal information to others.
- Inform students how they can benefit from respecting the privacy of others, because someday their own information may be at stake.
- Remind students not to take others' work directly or copy others' work from the internet as their own, for example, downloading illegal software, music, and movies.
- Remind students to be respectful to others when communicating on the internet, not using offensive words and pictures.
- Help students to develop positive attitudes toward technology.
- Outline explicit rules regarding access to content on the internet (Berson et al, 1999, Simpson, 2004).
- Teachers are in a unique position to show students how to use technology properly.

According to the International Society for Technology in Education, teachers should follow performance indicators for social, ethical, legal, and human issues. These are:

- Model and teach legal and ethical practices related to technology use.
- Apply technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.
- Identify and use technology resources that affirm diversity.
- Promote safe and healthy use of technology resources.
- Facilitate equitable access to technology resources for all students.

After proper training in technology integration, teachers can engage students effectively in technology classrooms. At this point, schools should make in-service workshops for teachers to develop these skills. Therefore, the role of schooling is also changing. Schools also can provide a different learning environment to people, such as distance learning through the use of the internet; it would help people to pursue their studies in their own time and location. The responsibility of schools is increasing too. Schools should have rules and obligations to help students learn how to use the internet in a safe and responsible manner. For example, filtering is important for school and home computers. Teachers and parents should work together and discuss what kinds of restrictions are more efficient for students. Some people think we should protect our children from harmful, offensive and inappropriate information on the web.

Schooling should help students learn how to think critically about technology issues, not what to think about them.

Teachers can help students acquire informed attitudes about the various technologies and their social, cultural, economic, and ecological consequences. When

teachers do express their personal views, they should also acknowledge alternative views and fairly state the evidence, logic, and values which allow that other people have those views.

Access of Technology in Education

Technology should not primarily be used as a tool to reward students who finish their class work the fastest; instead it should be utilized as an opportunity for all students to engage in its interactive uses. In the internet environment, there are so many inappropriate places students can access. The Children's Internet Protection Act requires public schools and libraries to take steps to prevent minors from accessing certain materials on cyberspace. Many filtering systems protect children from these inappropriate websites. The purpose of filtering software is to create a secure environment in which children interact online in a safe, educational, and entertaining context. Internet filters enable parents/teachers to block inappropriate sites or restrict access at certain times of day. Some software also provides features that prevent children from revealing personal information, such as name, age, address, phone number, or school name to online acquaintances through websites and chat rooms. However, as we know, "students' curiosity....often enable them.....to overcome the external controls provided by filters." (Berson et al, 1999, p.161). Filters may help protect young students in elementary school settings, but filtering should be used less in middle and high schools. Instead, having educators available to guide students through the use of the internet, answering their questions and addressing safety concerns, would be more meaningful than relying on a static software program.

Technology and Public Health Education

Addressing public health challenges in the 21st century requires a workforce familiar with current technology. Goldman *et al.* report on the use of one such technology, the blog, to enhance learning through ongoing discussions. Delivering course content in such forums does more than foster discussion; it capitalizes on student familiarity with social venues such as Facebook and encourages the transfer of useful technology to the public health sector. Infusing technology into a graduate-level course on health determinants, and early experience, indicates that keys to success include instructor dedication to the concept, effective technical support, simple and intuitive technology, and student ownership .

Numerous other electronic media (eg. blogs, video casting) are available for delivering educational content. The unique attributes and weaknesses of each greatly affect user experience and utility, so the decision of which technology to adopt should be driven by educational objectives, user connectivity, and familiarity. What is ultimately important is that technology enhances the attainment of learning objectives and student engagement with materials.

Discussion forums allow instructors to assess how well material is being understood before a class and to adjust activities accordingly. Podcast and telecast

information use the spoken word to weave a degree of intimacy and personal connection into mass communication not achievable through e-mail.

Technology can also foster interactive learning, building on the familiarity with user-generated content many students develop from sites such as YouTube. For example, students can be assigned to create brief (≤ 5 minute) audiovisual synopses of key journal articles or concepts with free software. This satisfies multiple objectives: students attain and demonstrate mastery of material by teaching it to viewers, course content is created for future classes, and a new generation of public health workers receives training in innovative communication techniques. Although the use of teaching technology presents challenges, it has the potential to achieve goals beyond the learning objectives of a single class, including the promotion of technological solutions to support future public health activities (Ano Lobb and Sharon McDonnell, 2009).

The Relationship between Technology and Society

The nature of the relationships between technology and society is extremely complex and there is no way to fully explain it. However, there is no doubt that both elements feed off each other. Social construction illustrates innovation as a process of co-construction in our society and relates to how society and technology influence each other. “This discussion has made evident the interaction of culture and technology at all levels. The earliest human societies used technology, in the form of tools and weapons to transform their natural environment. Civilizations are based on, among other things, the technologies of building and writing” (Murphy and Potts, 2003). Technology’s influence on social change is indisputable. Language is a technology; almost everything we do or have after we’re born is thanks to technological advances at some point. Therefore, society as we know it is dependent on technology. However, there is a passage on the philosophy of “soft” determinism which suggests technology does drive society, but technology is also shaped by human needs. “To understand the origin of a particular kind of technological power, we must first learn about the actors. Who were they? What were the circumstances?” (Marx and Smith, 1998). This quote references how the circumstances of society motivated the creation of new technology.

There are various evidence to support the positive influence technology has contributed to the society: for instance, some new machines were invented so that manufactures could improve their products and work efficiency to stay competitive. For example, the invention of steam engine had accelerated the efficiency of many industries, including metallurgy, coal mines and the development of textile industry.

The Wright Brothers tried and failed many times to discover what it took to fly, but they were the ones motivated enough to enhance their society with technology. Technological breakthroughs do not always happen by accident. The need in society for a quicker way of transportation necessitated the advancement of air travel. The mastery of flight, in turn, necessitated social change in how we view time, space and changed

how people can do business and live their lives. The invention of airplane has now become an indispensable delivery machine in our modern society.

From the second half of the 20th century the pursuit of quality life through technological upgrading has never changed. Until recently, technology has accelerated the growth of more advanced economies in quite a few societies, and has promoted the fast grow of leisure class. New technologies are largely developed for civilian use, for example, the research and development of mobile phone technology is fundamentally resulting from society's needs, since people have the needs for being able to stay contacted with others all the time, and wherever they are. In conclusion, technology and society are intertwined and cannot be separated from each other.

Interconnection of Technology, Education and Society

Scientific and technological progress is the main driving force of social development. In a certain sense, the process of social development is the process of scientific and technological progress. It is widely accepted that technology has had various effects on society, these effects have not been limited to make people's lives more materially prosperous, but have also significantly affect human as well as other animal species' ability to control and adapt to their natural environments. However, the relationship between technology and society is not all one way. Throughout the human history, social factors also play an inseparable role in the process of technological change. Technological development depends on the progress of culture and education. It assumes that technologies will emerge readily in response to market demands, also levels of social development and education quality, directly affects the process of technological development.

Impact of Technology on the Education and Society

Technological developments have several impacts on our lives. These impacts economically, socially and interpersonally and educationally affect our daily lives. The economic impact of technology is mostly seen in economically challenged places. It creates a digital divide between poor and rich, rural and urban, developed countries and undeveloped countries. When technology serves as reinforcement between social classes, it makes accessibility to education even harder for the poor. However, the internet provides a good resource for people. For example, distance learning allows universities to increase their market, while reducing financial demands on student. Because of distance learning, many individuals may access different educational institutions, and may become lifelong learners. Besides these impacts on education there are also some drawbacks. For example in distance learning, it reduces the face to face interaction between students to students or/and students to teacher. Although the use of internet technology in education is fairly new, this emerging field is being used more widely. Educators can take more advantage of these innovations than before by incorporating them into their educational practices and to adapt to changes taking place in society. Murray (2000) states that “technologies do not cause social changes on their own and that changes result from mutually influencing social and technological factors:

New technologies like the printing press merely facilitate changes already beginning to take place.”

Inclusion of technology in any course has great potential to increase learning and expand students’ knowledge. Educators have argued that free access to a wide range of information will be beneficial, as society moves into an electronic future. Another side of the issue is that the increased use of technology is actually widening the gap between the “haves” and “have nots.” This “digital divide” implies unequal access of some sectors of the community to information and communications technology and to the acquisition of necessary skills. The main reason for the digital divide is the cost to access information on the net. The source of this cost mostly comes from:

- Wiring the university buildings
- Free internet access for students
- Purchasing the computer equipment
- Growing demand on technical employees (Akcaý, 2008).

Moreover, ethical issues should not be overlooked, such as Privacy/confidentiality: Internet users consider privacy (security) to be one of the important issues. The usage of internet has grown explosively as fast internet connections get cheaper. However, a lot of the internet users (e.g. students) are not aware of the fact that personal information may be revealed when they go online.

Although there is a wide realm of information available on the net, there is no agency monitoring “truth or accuracy of information.” There is no restriction on false information. Teachers should inform their students about the situation to protect them from citing or reading incorrect information. Inaccurate information can cause confusion in society, and even medical and legal issues (Akcaý, 2008).

Conclusions

With the swift advent of technology in previous decades, Information and Communication Technologies (ICT) have pervaded the workplace and fostered modern corporations along with providing governments with a proficient infrastructure. Besides these dramatic changes in many aspects of society, education remained by and large a traditional craft (Perkins 1992, p.3). According to Strommen (1992), “technological changes that affected society left educational systems largely unchanged” (as cited in Semple, 2000, p. 21). Since the users are imperative and have played a major role in the utilization of technology, factors affecting their technology use became an important concern for researchers. This is because merely the existence of technology in the classroom does not guarantee the utilization of that technology. Teachers are less likely to integrate technology into their instruction unless they accept the notion of the requirement of educational technology use in their classroom environment. (Stetheimer and Cleveland, 1998; Weiss, 1994). The central questions with regard to technology

acceptance are how individuals perceive technology and which factors contribute to the lack of utilization (Rogers, 1995; Surry, 2000).

Despite these dramatic technological changes in many aspects of society, educational systems, especially in our continent, seems to have been less affected by this current trend. Therefore, enormous challenges have been left, especially on institutions of higher education to rethink their missions and to re-structure their research and education programs. Because of globalization, the modern society due to this new orientation requires not only knowledge but equally innovation. These various innovative technological assets should be harnessed in the entire educational sector for the benefit of our society.

Teachers may not feel the need to change the traditional education system because it has been successful in the past. This does not necessarily mean it is the right way to teach for the current and future generations. Considering that today's students are constantly exposed to the impacts of the digital era, learning styles and the methods of collecting information have evolved. The advent of new and emerging technologies such as interactive surface devices, mobile and wireless technologies and the social web, afford teachers with unprecedented opportunities to try out new pedagogies which would previously have been difficult or impossible. Teachers may see new technologies as opportunities or as threats. Whatever their views, the teachers who will be successful will be those who incorporate new technologies into their courses, and who adopt a role that use supportive of flexible and mobile learning. It is up to the institution, through clear leadership, strong support of innovation and the adoption of a culture of blame-free experimentation, to ensure that new technologies becoming embedded into the fabric of the education programme. Only then will we begin to see the social web being used to its fullest capacity – as a liberating tool to enable students to learn anywhere, at any time, and in a style and at a pace that suits their individual needs and preferences. Moreover, as a result of technology, the rate of progress increases, society must deal with both the positive as well as the negative implications. The role of technological progress is a catalyst for economic transformation. Energy, physical sciences, information and communication all have been boosted by the innovation of technology. The world cannot operate without technology today, since it has brought so many conveniences to human life. It is a common believe that technological progress has opened up a range of modern activities for people; Contrariwise, technology are socially shaped, as it have been the primary impetus for technological progress in society. However the detrimental effects of technology progress are also a notable aspect in human society. There is no doubt that the essential precondition for technology development must ensure a safe and sustainable world for today's society and for the later generation. This may include a cleaner environment, better healthcare, less crime and a more equal standard of living for all members of society. Only in this way, the design and implementation of new technology can make our society flourish. I hope that, this conference will be beneficial to all developers of technology based on educational systems by focusing on the practical purpose of their developments in our

society. I equally hope that, it will also be of benefit to all educators who plan to enhance the teaching and learning processes and improve access to education based on novel technology, especially in Africa where several challenges need to be addressed. I finally hope that this forum will provide a common platform to discuss them.

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