

USING COMPUTER TECHNOLOGY IN EDUCATION IN THE COVID-19 ERA

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Abstract.

In recent years, computer technology has been developing at a rapid rate, and its development direction is no longer limited to the technology industry, and it has been widely used in various fields. Computer technology has also been introduced into the administrative management of schools, aeronautics, engineering, robotics, business, agriculture, languages, tomography, safety and security, medical science and so forth so that it can provide better services for the society. That is not to say that computer technology has no demerits. The greatest challenge of computer technology is over reliance on technology. A lot of students and other learners no longer pay serious attention to their studies; rather, they play computer games, design other things and continuously watch films, including pornographic types.

Key words: *computer, technology, education.*

Introduction

A computer is an electronic machine that can store and deal with large amount of information (Stokes, 2007). A computer is a machine that can be programmed to carry out sequences of arithmetic or logical operations automatically. Modern computers can perform generic sets of operations known as programs. These programs enable computers to perform a wide range of tasks. Computers play an important aspect of our lives because they may be used for just all our daily chores (Kejawa, 2017).

Computer Technology

Technology refers to methods, systems, and devices which are the result of scientific knowledge being used for practical purposes. Computer technology is a combination of computer related hardware or software such as multimedia computers, different types of media (graphics, audios and videos) and networked communication tools (email, bulletin boards, Blackboard or WebCT, and listserves), together in an educational setting in order to enhance language learning.(Tams, Grover & Thatcher, 2014).

Computer technology has several major impacts on the society, as technology is often the main driver for societal transformation, as discussed by Lee, Shao, and Vinze (2018). Nowadays, the uses or applications of computer technology are becoming more rampant and ludicrous in terms of their simplicities and sophistications in all fields of Science,

Engineering, Business and Arts. Computer technologies are being use in Farming (Agriculture), Hospitals, Churches, Manufacturing, Construction, Household, just to name a few. The coming age would definitely mandate the knowledge of the use of computers because of the innovation of technology, as the world changes (Iwasan, 2020).

Terms in Computer Technology

CD-ROM is a disc, much like an audio compact disc, that Cores computer programs and files. The tents CD-ROM Is an abbreviation of Compact Disc Read -Only Memory.Database is a large body of Information that can be searched in several ways.

File is the smallest unit in which processed information Is stored There are test files and sound files for example. Floppy disk is a small disk that scores information; the disk can be removed from the computer. Hard disk consists of one or more platters that store information. The hard disk is built into site computer.

Hardware refers to the physical parts of a comparer system. Internet is a worldwide computer network to which tens of millions of computers are linked. Memory chip is a part of a computer that Cores information for immediate use by a microprocessor. Microprocessor is the part of the computer that does the actual computing. Some computers base more than one microprocessor. Modem is a device that enables computers to communicate with one another over telephone lines.

Network is a system of two or more computers connected by high-speed communications lines. Online service is a commercial computer network to which a subscriber pays a monthly or hourly fee. Operating system is software that controls the operation of the entire computer system. Program is a set at instructions to he carried out by a computer. Software consists of instructions that control the operation of the computer. World Wide Web is a part of the Internet that includes text, graphics, video, animation, and sound.

A trackball is commonly used instead of a mouse on laptop and notebook computers. The main part of this device is a ball built into the keyboard. The ball has the same function as the ball built into the button of a mouse. Turning the ball by hand move pointer.

A light pen enables a computer user write words or draw pictures directly into a computer. The user touches the point of the pen on the screen of a special pad, then makes writing or drawing motions pictures, electronic devices in the pen under the surface of the pad interact to translate the motions into computer code. The microprocessor then uses the code to put an image corresponding to the motions on the screen. Some artists and designers use an electronic pen and pad to produce illustration

A touch screen can produce the same results as an electronic pen and pad. A touch screen produces electric current underneath whatever areas of the screen are pressed. A microprocessor uses the current to produce an image.

A modem is an electronic device that communicates with other computers over telephone lines. Thus, a modem functions as both an input device and an output device. In many of the latest computers, the modem is built-in. Others use a peripheral modem.

A scanner is a peripheral unit that uses light and devices that sense light to digitize photographs and other illustrations-a-that is, to translate them into numerical form for processing by a computer. A scanner equipped with optical character recognition (OCR) software translates the scanned image of a page of text into individually coded characters. Publishers are major users

of scanners, but scanners are also becoming popular with home computer users.

Laser devices that read bar codes at checkout counters in stores are also scanners. These devices send coded information to a store's main computer. A microphone translates sound into electric current, which the computer digitizes. The operator of the computer can process the Sound by itself, or aspen of a different kind of file - a motion-picture file, for example.

Storage devices store computer files. Storage devices include hard disks, floppy compact discs called CD-ROMs, and tape devices can also serve as input devices, and the CD-ROMs can serve as output devices

Hard disks can hold thousands of programs. The capacity of a typical PC hard disk built in 1990's is about 500 megabytes, but some hold twice that amount. The disk, which actually is one or more planers, is bulb into the computer receives and transmits data via a machine called in which a mechanical device spins the dish electronic device. Floppy disks are small magnetic disks that moved from the computer. Floppy disks are store information for later use by the same and to move information from one computer.

Common Uses of Computers

The uses of computers today are as diverse as the forms of computers that exist in the market.

3D Animation

3D animation is the computer design field which is concerned with animating objects that have been created in 3 dimensional models. Such 3D models can be manipulated to move and act like real life objects and computer simulation

Music Production

Computers became a very important tool in music production starting in the 80s when they were used to digitally master and control musical instruments via the Musical Instrument Digital Interface (MIDI).

Video Editing

Video editing is all about manipulation of motion video by rearranging and adding special effects in order to produce meaningful audiovisual files.

Automation

Computer automation is the use of control systems to operate a selection of devices in the home, office or industrial establishments. Common devices that can be controlled this way include telephone networks, ships, aircraft, domestic electronics and industrial facilities.

Computer as Robotics and Humanoids

A robot is an advanced and automated device which may be mobile and capable of sensory feedback and data processing. Robotic Process Automation is an emerging form of business process automation technology based on the notion of software robots or artificial intelligence workers.

Web Browsing

For many people, information is perhaps the most important aspect of desktop computers, laptops and smart phones. When computers and Internet became commonplace starting in the 80s and 90s, users rushed out to seek information through surfing via browsers like internet Explorer, Yahoo and Google.

Some areas where computer technology has impacted contemporary society

Computer technology was introduced into medical science beginning in the 1950s. Gustav Wagner in 1949 established the first professional organization for health informatics in Germany. During the 1960s, there were specialized university departments and informatics training centers established in Netherland, Germany, France, and Belgium. During the 1970s medical informatics research units appeared in the United States and Poland and much work towards the development of high-quality health education began in these developed countries. These developmental works focused on research, infrastructure, and the education field of healthcare services using ICT technology.

A number of previous studies have shown that an appropriate use of ICT can raise educational quality and connect learning to real-life situations (Lowther, et al. 2008; Weert and Tatnall 2005). As Weert and Tatnall (2005) have pointed out, learning is an ongoing lifelong activity where learners change their expectations by seeking knowledge, which departs from traditional approaches.

Importance of Computer Technology in Everyday Life

Computer technology is used to serve and connect people in the modern world. Desktops, laptops and mobile devices network the world together and perform multiple operations at once. This industry includes more than these machines. Individuals, communities, government and organizations rely on computer technology to produce the majority of things in their lives, such as food, services, entertainment, care, communication, education and transportation.

Computer Technology in Food

Farmers use innovations in computer technology to determine the best time to plant, fertilize, harvest and sell crops. The Internet offers weather and stock market reports in real-time, and its global network of potential buyers is more expansive than local merchants. As farmers become aware of new farming technology, they can adapt their future farming methods. It assist farmers to plan market so as to obtain better price for produce and it also save from exploitations from the middlemen, who uses the prevailing information-gap (Lim, 2007).

Computer Technology in Services

Many types of operations, such as billing, record keeping, transactions and planning, take place through commercially available or customized machines. ATM machines, gas station pumps, GPS units and barcode scanners may be common in everyday life; however, each relies on circuit boards and digital data to meet the needs of consumers sometimes using smart phone.

Computer Technology in Entertainment

Major motion pictures and television programs use some form of visual, audio and animation effects in their production. Video games employ graphics produced by a computer, and each game plugs into a computer-based home entertainment system. Players can play by themselves

or with others over the Internet. Some game systems can sell downloadable programs and stream movies online.

Computer Technology in Communication

Computer technology has contributed immensely to social and economic improvements, such as higher employment and productivity, increasing access to a higher quality of life (Chandrasekhar & Ghosh, 2001). Computer technology incorporates electronic technologies and techniques used to manage information and knowledge, including information-handling tools used to produce, store, and process, distribute and exchange information (UNTFTD, 2003). They enable communication with people both within and outside the business, using various technologies, including e-mail.

Computer technology can generate important contributions to public health, from education to surveillance. In the education and higher learning context, it enables healthcare professionals to be updated and trained on knowledge advances wherever they are located (Chandrasekhar & Ghosh, 2002)

Computer Technology in Transportation

The basic functions of modern vehicles are controlled through computer chips and circuitry. Engine microprocessors calculate the proper mix of air and fuel for combustion, and a circuit board regulates the timing of the spark plugs. Certain safety features or luxuries, such as airbags, cruise control, anti-lock brakes and automatic transmission, all rely on computer technology to function. GPS systems passively receive satellite signals that inform drivers of their location or how to find a specific destination.

Business

Computer technology benefits business at every level. Computer technology allows for the automation of numerous manufacturing processes. It provides real-time access to financial markets across the globe, 24 hours a day. A variety of software packages exist that enable companies with multiple warehouses to track total inventory, ordering and sales for the entire company, rather than wait on weekly or monthly hard copy reports. The internet provides a means for businesses to list their full line of products and provide purchase options without catalogues, brick –and -mortar store locations or on-site personnel.

Travel

Computer technology radically alters the process of travel. Savvy travellers no longer need a travel agent to get to their destination of choice. Online services provide travellers the chance to book tickets, compare prices and even to plan routes for travel by car, all of which reduce costs in time and money, GPS systems, particularly in-vehicle GPS systems, give drivers accurate navigational information as they travel.

Fast access to research and information

Gone are the days when the only way to research and do your assignments is through the library. Today, the availability of a computer in education makes it a whole lot easier and faster to access everything you need to research. In just a few clicks, you can get all the answers you need for your school projects use (Abbott and Faris 2000; Whelan 2008).

Making tasks easier

Most schools now issue Chrome books or tablets instead of costly and weighty textbooks. All subjects, worksheets, and assignments are on a little device weighing less than two or three pounds, which they can easily take with them, no matter where they go. Students can no longer use the excuse “I forgot my assignment in my desk” or “I left my homework at home” because they upload each assignment to the Cloud as it is completed

Using Computer Technology in Education

The merits of ICT in education have been extolled in the literature. The use of ICT has been found to: Assist students in accessing digital information efficiently and effectively As Brush, Glazewski and Hew (2008) have stated, ICT is used as a tool for students to discover learning topics, solve problems, and provide solutions to the problems in the learning process. ICT makes knowledge acquisition more accessible, and concepts in learning areas are understood while engaging students in the application of ICT. Support student-centered and self-directed learning Students are now more frequently engaged in the meaningful use of computers (Castro Sánchez and Alemán 2011). They build new knowledge through accessing, selecting, organizing, and interpreting information and data. Based on learning through ICT, students are more capable of using information and data from various sources, and critically assessing the quality of the learning materials. Produce a creative learning environment ICT develops students’ new understanding in their areas of learning (Chai, Koh and Tsai 2010). ICT provides more creative solutions to different types of learning inquiries. For example, in a reading class, e-books are commonly used in reading aloud activities. Learners can access all types of texts from beginning to advanced levels with ease through computers, laptops, personal digital assistants (PDAs), or iPads. More specifically, these e-books may come with some reading applications, which offer a reading-aloud interface, relevant vocabulary- building activities, games related to reading skills and vocabulary acquisition, and more. Therefore, ICT involves purposedesigned applications that provide innovative ways to meet a variety of learning needs. Promote collaborative learning in a distance-learning environment Koc (2005) mentioned that using ICT enables students to communicate, share, and work collaboratively anywhere, any time. For instance, a teleconferencing classroom could invite students around the world to gather together simultaneously for a topic discussion. They may have the opportunity to analyze problems and explore ideas as well as to develop concepts. They may further evaluate ICT learning solutions. Students not only acquire knowledge together, but also share diverse learning experiences from one another in order to express themselves and reflect on their learning. Offer more opportunities to develop critical (higher- order) thinking skills Based on a constructive learning approach, ICT helps students focus on higher-level concepts rather than less meaningful tasks (Levin and Wadmany 2006). McMahon’s study (2009) showed that there were statistically significant correlations between studying with ICT and the acquisition of critical thinking skills. A longer exposure in the ICT environment can foster students’ higher critical thinking skills. Thus, schools are strongly advised to integrate technology across all of the learning areas and among all learning levels. Where this is done, students are able to apply technology to the attainment of higher levels of cognition within specific learning contexts.

Improve teaching and learning quality As Lowther et al. (2008) have stated that there are three important characteristics are needed to develop good quality teaching and learning with ICT: autonomy, capability, and creativity. Autonomy means that students take control of

their learning through their use of ICT. In this way, they become more capable of working by themselves and with others. Teachers can also authorize students to complete certain tasks with peers or in groups. Through collaborative learning with ICT, the students have more opportunity to build the new knowledge onto their background knowledge, and become more confident to take risks and learn from their mistakes. Further, Serhan (2009) concluded that ICT fosters autonomy by allowing educators to create their own material, thus providing more control over course content than is possible in a traditional classroom setting. With regard to capability, once students are more confident in learning processes, they can develop the capability to apply and transfer knowledge while using new technology with efficiency and effectiveness. For example, in an ESL listening and speaking class, students may be asked to practice their pronunciation using an online audio dictionary. They are required not only to listen to the native pronunciation from the dictionary, but also to learn the definitions and examples of a new vocabulary item. They then have to make a recording of their own pronunciation and provide examples of how this new word is used in context. Before completing this task, they have to know which browser to use in order to search a suitable online audio dictionary. They will have to browse several online dictionaries, and select the one that best meets their learning needs. In addition, finding good software to record their voice is another prerequisite for these learners. Therefore, the whole learning process enriches students' learning skills and broadens their knowledge beyond what they already know. By using ICT, students' creativity can be optimized. They may discover new multimedia tools and create materials in the styles readily available to them through games (Gee 2007, 2011), CDs, and television. With a combination of students' autonomy, capability, and creativity, the use of ICT can improve both teaching and learning quality. Support teaching by facilitating access to course content Watts-Taffe et al. (2003) found that teachers can act as catalysts for the integration of technology through ICT. If the encouragement, equipment, and necessary technological support are available from institutes for the teachers, developing an ICT class will be easier for them. The main responsibilities of these teachers will be changing their course format, creating and explaining the new assignments, and arranging for the computer lab through their technology learning specialists or assistants. In sum, as Reid (2002) has indicated, ICT offers students more time to explore beyond the mechanics of course content allowing them to better understand concepts. The use of ICT also changes the teaching and learning relationship. Based on the findings of Reid's study, teachers reported that the relationship between teacher and learner is sometimes reversed with regards to information technology. This relationship boosts students' confidence when they are able to help teachers with technical issues in the classroom. Therefore, ICT changes the traditional teacher entered approach, and requires teachers to be more creative in customizing and adapting their own material. While ICT is changing teaching and learning for the better in several ways, the existing literature has also identified some barriers. In the following sections, these barriers are classified into four categories based on the perspectives of students, teachers, administrators, and ICT infrastructure.

Other Ways Technology Has Changed Education

As mentioned in earlier sections of our report, technology is radically changing the way we understand the learning process, defined by Wikipedia as the set of strategies people deploy

in “acquiring new, or modifying existing, knowledge, behaviors, skills, values, or preferences.” Computer-based instruction is now prevailing throughout the learning environments all over the world, reshaping minds and imposing new roles on both teachers and students. Thanks to the integration of technology in classroom environments, students are active, motivated and eager to learn ((Lim, 2007).). They also assume greater responsibility for their learning (Johnson, Schwab, & Foa, 1999). Individualizing learning, which is regarded as an implication of technology, makes students more capable to cope with problems independently (Choy, D., Wong, F. L. and Gao, P., 2009). Consequently, teachers are no longer transmitters of information; rather, they are engineers or designers of learning environments. Their main task is to re-arrange the elements of effective learning through placing themselves in the middle between students and curricula. However, recent studies have shown that technology has a negative impact on the process of education (independently (Choy, D., Wong, F. L. and Gao, P., 2009).), particularly on the four areas stated below:

Deterioration of students’ competencies in reading, writing, and arithmetic, which are the basic three skills any student is expected to master;

Dehumanization of education in many environments and distortion of the relationship between teachers and students;

Isolation of students in a digital and virtual world that distances them from any form of social interaction;

Deepening of social inequalities between the haves and the have-nots that is students who can possess technology and those who cannot.

Another example of the negative effect of technological devices such as smart phones, tablets, PCs and laptops on students’ performance is brought to us by Strain-Moritz (2016), an experienced teacher who ascertains that texting has negatively impacted

students’ ability to write full sentences, with no fragmentation or awkward punctuation. Alhusban (2016) also stipulates that classroom technologies drastically affect students’ ability to write, notably when it comes to spelling and punctuation, grammatical accuracy, spelling, proofreading, critical thinking, respect of coherence and linearity. She also argues that constant exposure to short forms cripples students’ ability to splash out effort in writing and that the short forms that are frequently used in texting makes it daunting for them to distinguish formal conventions of writing from informal ones.

Conclusion and Recommendation

Since the introduction of computers and computer technology, the society has benefitted a lot from it, ranging from ICT in several areas, in the classroom in the showroom, in hospitals, engineering, aeronautics, in the music industry, in business, sports, in teleconferencing, in power point presentation, in various offices, in computer simulation, and so on. As good as it is, there are also some problems associated with computer technology, reliance on technology, students no longer pay attention to their teachers; rather, they prefer playing computer games, watching bad films and so forth.

Wilkins (2014) provides a list of recommendations on how to handle technology in a way that would not be threatening to students. Her suggestions encompass:

Making sure learners to interact with each other even when immersed in their digital world,

Devising activities which necessarily promote communication and collaboration,
Sharing and comparing (blog posts, classroom projects ...) to see how technology can connect learners all around the world,
Encouraging tech-savvy students to design interactive content that would enrich the course

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