International Journal of Operational Research in Management, Social Sciences & Education | IJORMSSE
p-ISSN: 2536-6521 | e-ISSN: 2536-653X
Volume 7 Number 1 May, 2021

Multimedia in Education and the COVID 19 Era

Fatima Atiku
Department of Science and Vocational Education,
UMYU Katsina

Article DOI: 10.48028/iiprds/ijormsse.v7.i1.12

Abstract

The COVID-19 pandemic has forced educational communities all over the globe to announced the end of face to face teaching in schools; thereby resorting to an "online teaching and learning". As a consequence, teachers and learners faced a lot of challenges and pose a gap between what they are used to and what they have to face. There is therefore an increasing demand among teachers and students reflecting on new technologies necessary for the new teaching and learning scenario. However, multimedia merges multiple levels of learning in to an educational tool that allows for diversity in curricula presentation. The paper looks into different multimedia approach and how it would be utilized in the teaching and learning endeavors.

Keywords*: Multimedia, Education & COVID-19*

Corresponding Author: Fatima Atiku

Background to the Study

Coronavirus disease 2019 (COVID-19) emerged in December 2019 in Wuhan, the capital of Hubei province, China. Is a contagious newly identified virus that have an enormous public health impact with substantial fatal outcomes in high-risk groups and economic and societal disruptions. This highly contagious disease is currently spreading across the world, with a daily increase in the number of affected countries, confirmed cases and infection-related deaths. Based on the high levels of global spread and the severity of COVID-19, on 11 March 2020, the Director-General of the WHO declared the COVID-19 outbreak a pandemic Debajyoti, Vajirasak and Syamal (2020)

In order to curb the spread of the disease by flattening the "growth curve", measures that are appropriate and proportionate to each phase of the epidemic are immediately put in place to interrupt human-to-human transmission chains; nationwide lockdown, social distancing and work from home are the new streaks that are being adhered to strictly by majority of the countries of the world today. The educational sector is no exception to this regard, as it has witnessed closure of all level schools, colleges, universities and other similar institutions. This led to digitalization of the teaching learning process by resorting to an "online" studies. Online education is not a new concept, but their purpose served mainly as an add-on in addition to the traditional face-toface classroom set-ups. In view of the current pandemic, globally there has been a paradigm shift from a "mixed-mode" (offline + online) of education delivery to an "online-only" exclusivity model.

Accordingly, we presume that in order to maximize the effectiveness and relevance of such a delivery model, it is essential to have some idea related to the multimedia experience obtained by the students in such a learning environment (Debajyoti et al., 2020). All through from the 1990s, the concept of multimedia took on a new meaning, as with the capabilities satellites, PCs, sound and video merged to make new media with huge potential, combined with the advances in hardware and software. These advancements had the capacity to provide enhanced learning facilities with thoughtfulness to the specific needs of individual users.

Definitions of Multimedia

"Multimedia" is a term frequently heard and discussed among educational technologists today. According to Abdullahi (2013), multimedia is referred to as the use of a variety of instructional materials such as audio tapes, slides, transparencies, filmstrips, motion pictures, still pictures, animation and text in a single presentation. He further emphasized that they are combination of media combined for communicating information to students.

The term can alternately mean "a judicious mix of various mass media such as print, audio and video" or it may mean the development of computer-based hardware and software packages produced on a mass scale and yet allow individualized use and learning. In essence, multimedia merges multiple levels of learning in to an educational tool that allows for diversity in curricula presentation which is characterized by the presence of text, pictures, sound, animation and video; some or all of which are organized

into some coherent program" (Alfar, 2009). Multimedia according to Carlson, (2002) multimedia is the exciting combination of computer hardware and software that allows you to integrate video, animation, audio, graphics, and test resources to develop effective presentations on an affordable desktop computer.

Although personal definitions abound, generally it is accepted that multimedia is classified as any combination of text, graphics, sound, animation, and video delivered and controlled by the computer via electronic or digital manipulated means. In order to create a good multimedia project, you need to be creative, technical, organizational and business skills. When the user is allowed to control what and when these elements are delivered, it become an interactive multimedia or can be called hypermedia, which refers to a system of multimedia information representation in which the information stored in various media are connected normally via the internet (Abdullahi, 2013).

In general, multimedia has been moderately fruitful in light of the fact that it draws upon more than one of the five human senses, using the two essential senses vital for information reception, sight and sound. Because of movement and sound, it can likewise trigger attention, intrigue and inspiration simultaneously. However, multimedia alone is captivating, best case scenario and does not require the user to be effectively controlling or fundamentally contemplating what is being displayed.

Components of Multimedia

Components of Multimedia are Text, Audio Sound, Static Graphics Images, Animation and Full-Motion Video.

Text

Text is a set words or symbols in any form, verbally expressed or composed which is the most widely recognized system of communication. It is used in most multimedia applications that can be joined with other media in an amazing and significant approach to exhibit data and express mind-sets. Text is the basis for word processing programs and is still the fundamental information used in many multimedia programs. In fact, numerous multimedia applications depend on the conversion of a book to a computerized form. This conversion prompt access to the content and gives the person in question presentation a chance to immediate access to the text and lets him or her display pop-up windows, which give meaning of certain words. One type of application, which numerous individuals utilize each day is the Windows Help Engine.

This application is a text-based information viewer that makes accessing information related to a certain topic easy, and this is called the "Hypertext". Examples includes; PDF and Word pad.

Audio

Audio is the best way to attract attention, as the mix of sound into a media application provides users with data impractical through some other strategy for communication. In fact some types of information can't be passed on viably without utilizing speech, music

and audio effects. These are called audio or the sound component. Audio can also strengthen the user's comprehension of data exhibited in another kind of media. Experts in learning have found that presenting information using more than one sense aids in later retention of the information.

Audio sound is available in several different formats, which includes; Red book audio (the most common type of audio today, used with multimedia applications and forms the basis for the highest quality sound available).Another audio sound format is the windows wave file, which can be played only on PCs running the windows operating environment and can store any type of sound that can be recorded by a microphone. The final type of audio sound that may be used is known as the Musical Instrument Digital Interface (MIDI), which is actually a specification invented by musical instrument manufacturers and cannot store anything except in the form of musical notes.

Static Graphics Images

Graphics are the digital representation of non-text information, such as a drawing, chart, or photograph, which makes the multimedia application attractive. They help to illustrate ideas through still pictures that have movement. This makes displaying graphics images easier than it would be in a DOS-based environment. Static graphics images have a number of formats and can be created in a number of different ways.

There are two types of graphics used: bitmaps (paint graphics) and vector (draw graphics). Bitmaps images are real images that can be captured from devices such as cameras or scanners. Vector graphics are drawn on the computer and only require a small amount of memory. There are different kinds of image formats like the Captured Image Format and the format when images are stored. The captured image Format is known by two main factors that is spatial resolution which is specified as pixels x pixels (225x 225) and color encoding, which is specified by bits per pixel. Both factors depend on hardware and software for input/output of images. The Stored Image Format is when an image is stored; It is being stored on a two-dimensional array of values, in which each value represents the data associated with a pixel in the image. These types of images can be edited with the help of few of the software like general drawing paint, adobe Photoshop, Photos cape etc.

Animation

Animation is a series of graphics that create an illusion of motion. In multimedia, digital animation is used. Digital animation can be categorized into two broad areas: 2D (2 Dimension) and 3D (3 Dimension) animations. 2D animation refers to creating movements in basic objects. These objects are put into various situations or positions and have movement on the screen. 3D animation refers to creating movements to three dimensional digital objects from photographs. Movements like spinning and flying across the screen are some samples of animations. Since animations usually involve graphics, they are highly dependent upon the size and file type of the graphics that are being animated. There are many ways you can create animations. Author ware, Dreamweaver, Director and Flash can all create animations.

Video

Video is the technology of electronically capturing, recording, processing, storing, transmitting, and reconstructing a sequence of still pictures speaking to scenes in movement. In other words, they are photographic pictures that are played back at a speed within a second and afterward gives the presence of full movement. Video is more towards photo realistic image sequence / live recording as in comparison to animation. Video makes use of all of the elements of multimedia, bringing your products and services alive, but at a high cost. Despite the fact that video requires heaps of data transfer capacity to download it is valuable for passing on certain data. Utilizing video in e-learning helps to practically show equipment and procedures among others. There are three standard digital video formats; Quick Time, Video for Windows, and MPEG.

Presentation and Effective use of Multimedia in Education

There are two types of multimedia presentation, these are; Linear Presentation and Non-linear Interactive presentation. In linear, active content progresses often without any navigational control for the viewer such as a cinema presentation while the Non-linear uses interactivity to control progress as with a video game or self-paced computer based training. Hypermedia is an example of non-linear content.

Multimedia finds its application in various areas including, Advertisements, Art, Education, Entertainment, Engineering, Medicine, Mathematics, Business, Scientific research among others. In education, multimedia can be used as a source of information, such as the Encyclopedias, Encarta e.t.c which provides fact on a variety of different topics using multimedia presentations. Besides being a powerful tool for making presentations, multimedia offers unique advantages in the field of education. As such, the use of multimedia by teachers will stimulate active participation, enjoyable and exciting learning outcome and encourage the students in individualized multisensory learning. It enables the students to represent information using several different media, which makes them highly motivated and encourage them to be proactive learners. Hence, with multimedia, the process of learning can become more goal oriented, more participatory, and flexible in time and space, unaffected by distances and tailored to individual learning styles, and increase collaboration between teachers and students. (Aloraini, 2005). In addition, multimedia applications can be used to facilitate group work. Small groups of students can work through multimedia applications together – in order to learn from each other as well as to improve their dialogue skills. (Andresen and Brink, 2013).

Multimedia approach additionally provide flexibility, in the sense that students who could not easily understand written expression but are very good in the identification of audio and video, can record or make connection with one another for discussion or listening to the previous topic that they have recorded.

Advantages of using Multimedia

1. It is user-friendly and very easy to understand. It doesn't take much energy out of the user, in the sense that you can sit and watch the presentation, you can read the text and hear the audio.

2. It is multi sensorial. It uses a lot of the user's senses while making use of multimedia, for example some students profit more from learning by reading, some by hearing and some by watching, etc.
3. It is integrated and interactive. All the different mediums are integrated through the digitization process. Interactivity is heightened by the possibility of easy feedback.
4. It is flexible. Being digital, this media can without much of a stretch be changed to fit diverse circumstances and audiences.
5. It can be used for a wide variety of audiences, ranging from one person to a whole group.
6. Multimedia take care of students with different learning abilities, as in the case of students having weak reading skill can use audio and visual learning tools for better understand.
7. Students working with multimedia will have the opportunity of seeing real things.
8. Students can adjust their own learning processes according to their abilities and preferences, without any hindrance of being dragged back or proceeding ahead as in fast or slow learner.
9. It takes into account individual differences among learners and increase their motivation.

Disadvantages of using Multimedia

1. Information overload. Because it is so easy to use, it can contain too much information at once and therefore distract attention during learning.
2. It takes time to compile. Even though it is flexible, it takes time to put the original draft together.
3. It tends to be costly: Multimedia makes use of a wide range of resources, which cost a large amount of money.
4. Problem of Compatibility: Some computers will not accept materials from other computers
5. Self-regulated learning: Some learners are not ready to deal with the opportunity given by hypertext-based multimedia.
6. Low interactivity: Even though the interactivity between the learner and multimedia applications is increasing, it is still considered restricted compared to the elaborated human-human interactivity. Henceforth, computers can't substitute for individual to-individual instruction, however just improve it.
7. Computer screens are not paper: The content on screens may not be as easy to read as the content on paper. If there are large chunks of information, it is probably best to view such a document on paper. Books and journal, articles may still be better to read as print-outs.

Data over-burden. Since it is so natural to utilize, it can contain an excessive amount of data on the double and in this manner occupy consideration amid learning.

Conclusion

To date, coronavirus spreads around the world. the massive effort made to make sure learning keeps going is the act on technology, which seems to be the answer. but While financially well-off families affords computers and multiple devices, students from struggling families hardly afford simple devices and may likely not have the internet at home. Nonetheless, Multimedia is flexible and unaffected by distances and tailored to individual learning styles, and increase collaboration between teachers and students. It can also be used to educate students about the virus itself and to teach basic hygiene. For instance, a cartoon musical video about hand washing and other precautionary measures to protect from the virus has gone viral.

References

Abdullahi, M. (2013). *An introduction to media and method (2nd edition*), 118-123

Alfar, I. (2009). *Preparation and production of interactive multimedia software (second edition*), Delta Computer Technology, Tanta, Egypt.

Aloraini, Y. A. (2005). *The effectiveness of multimedia software for teaching engineering in the second row preparatory,* Unpublished Ph.D. thesis, University of Damascus, Damascus, 55-75.

Andresen, B. B. & Brink, K. (2013). Multimedia in education curriculum, *UNESCO institute for information technologies in education, Moscow*, 22-27.

blogs.worldbank.org-Can technology help mitigate the impact of COVID19 on Education.

Carlson, S. (2002). The missing Link in educational technology: Trained teachers, *International Journal of Technologies for the Advancement of Knowledge and Learning, 7-*11.

DebajyotiP., Vajirasak V., & Syamal P. (2020). *Online learning during COVID-19: students' perception of multimedia quality,* Retrievedviahttps://www.researchgate.net/publication/342678849

http://www.essay.uk.com/free-essays/information-technology/application-multimedia-education.php

Mukherjee, S. (2018). Role of multimedia in education, *Edelweiss Applied Science and Technology. 2*, 245-247

Necdet, I. (2018). The impact of using multimedia technologies on students academic achievement in the Bakirköy final college, *International Journal of Humanities Social Sciences and Education (IJHSSE) 5*, 40-47.