USE OF DIGITAL TECHNOLOGIES FOR EFFECTIVE TEACHING OF STUDENTS WITH SPECIAL NEEDS: OPPORTUNITIES AND HINDRANCES

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Abstract

In educating students with special needs, there is need to harness all necessary resources in order to offer them quality education they deserve. Digital device has become important part of instructional materials used for students with special needs, and it comes with a lot a benefits and challenges. This study examines the opportunities that digital devices offers in the education of students with special needs and the hindrances to its effective use. This paper uses e-learning and connectivism theory to justify the bases for the use of digital technology in educational institutions and highlights elimination of physical boundary, enhancement of innovation, access to pool of information and individualized learning as opportunities in digital technology while stating ever-changing nature of technology, resistance to change, poor infrastructures, lack of professional training as the main hindrance to the effective use of digital technology for the education of students with special needs.

Introduction

Students with special needs forma major part of school students nowadays with their unique characteristics and condition. These set of students required special attention, methods and approach in their education. Malama & Malama (2021) submit that children are with different characteristics and educational needs which call for special approach in offering them appropriate educational program needed for their development when trying to define special needs with regards to students, different conditions and characteristics that the child manifests are to be considered. These characteristics will help to categorize the child as a student who needs special attention or not and it is the unique characteristic of a child that determines what approach, materials and method such child will be given in their educational program.

Education in this modern age is of immense benefit to individuals and the nation at large because it serves as a tool that propels impartation of knowledge which instigates the major and developments and innovations that we see all over the world today. Chazan, (2022) opines that education is an activity that is intentionally embarked on to achieve some set of goals, the goals include imparting, ideas and knowledge, development of skills and character trait which are

essential for the growth and development of the society and making people live independently. So it is suffice to say that the level of importance a country attached to its education determines the level at which the country experience growth and development. Education is the foundation which every society builds on and it is an investment with tremendous value that can make countries develop a buoyant, and sound societies. It is now clearly seen that as education is useful for students without special needs, so it is for students with special needs.

Seeing that education is of immense benefit, then it is reasonable that worthy attention and all other necessary resources it needs (in materials, and person) so that the benefits therein will be maximally derived especially for students with special needs who most often may not be able to move at the same pace with their normal counterparts. UNESCO (2004) submitted that to have access to quality education is a right that people should not be deprived of and all means to promote and enhance these rights should be made use of and supported. This notion mindset gives birth to introducing technology and other materials into educational programs to enhance delivery of quality education for special needs students. Digital technology being one of the modern tools that is being used in education programs will be beneficial to students with special needs in this modernized age where many things have gone digital.

Meaning of Digital Technology

Technology is a term which connotes application of knowledge in other to attain some goals that can be used in a way that will give way to further production, technology is seen as products that result from knowledge application and the result are tangible, which is now seen in different aspect of human life, it is evident in different professions like medical, engineering, communication, education, social, communications, etc. Professionals in field of education introduced the use of some technological products in their attempt to find solution to some problems in education and to improve teaching and learning processes. Product of information and communication technology are mostly used in educational activities such as teaching, learning, storage of students' information, monitoring student's progress and other things and they are mostly referred to as educational technology. Educational technology has been defined in several ways. It is an act of studying and practicing of learning that is facilitated to improve performance by inventing, utilizing and coordinating technological systems and processes which are suitable for educational activities. this simply implies that to encourage good achievement through effective teaching and learning process, there is need to put into practice the use of invention. In agreement with the above submission, Loyola school of education, (2021) indicated that educational technology can be seen as an area of study that investigates different processes such as identification, creation, utilization, and assessment of learning process, environment,

materials, and the learners themselves, with sole aim of improving teaching and learning activities.

It should be noted that there are many other technology used in education activities but are not digital, for example chalk, blackboard, , writing pen,, etc. meanwhile Herold, (2016) submitted that educational technology comprises of anything (either digital or analogue devices) that improves learning in classroom, using both of physical, or internet components. So we can rightly say that educational technology is a term that covers materials, tools, and processes, and all the theories that support knowledge transmission. This now means that digital learning is just a part of technology that is used in education.

Digital tools that are used in education are all electronic media that support and improve education, and they include visible devices, like desktop and laptop computers, mobile/smart phones, projectors, digital/smart boards, etc. and software, like internet tools, programs and application for learning. Beebe (2004) indicated that digital technology paves ways for novel methods and approaches in education, in which students can have the opportunity to have an increased participation in educational activities more than ever before. Motiwalla (2007) submitted that when these devices are harnessed to learners focused instructions, then the use of digital technologies is assumed to help improve learning especially for students with special needs.

Relevant Theories

E-learning theory and connectivism theory are closely related in that both emphasize the role of technology and networks in learning, though they focus on different aspects of the learning process. Both theories stressed that when digital platforms are used to deliver learning content, it will reduce stress in teaching and learning processes. The theories reveal that when multimedia devices are being used, it will presents learning to student in a way that is similar to reality. For instance, student may be showed video of a war scene, this will give the real picture of how a real war situation look like than trying to explain to the war scene in words, this will reduces the cognitive stress of students. Connectivism views learning as a process of making connections through those same technologies and networks.

Both approaches recognize the learner as an active participant in the learning process. In e-learning, this might be through personalized learning experiences, while connectivism stresses the learner's role in navigating a complex network of knowledge, though in e-learning, knowledge can be structured, this presents content in a static manner but in connectivism, knowledge is seen as fluid and continuously evolving through interactions within a network. Encarnacion, Galang, and Hallar, (2021) posited that all the experience gotten from the application of these theories will offer students the opportunity to coordinate their learning in a way that will be beneficial to them whenever they make use of technological devices, make connections with others, improve their critical thinking skills and apply what they learn to real-life situations. In

addition, they gain knowledge about themselves and the world around them, while mastering the course materials (Filimban, 2008). E-learning platforms often support this dynamic flow by allowing learners to access and share information, much like the idea of creating connections in connectivism.

Opportunities that Digital Technology in Education Offers for Students with Special Needs

1. *It Facilitates Individualized Learning Experience*

Herold (2016) submitted that student with special needs can help themselves through the use of modern technology. For example, students who have access to tablet or other digital device that display things on screen, can learn alphabets, numbers, colors etc. on their own and at their pace, whereas Anuradha (2021) noted that, students are not offered this opportunity when digital technology has not been introduced into educational system, in those days students were just passive learners and only have to accept anything the teachers taught as the final and perfect answers. Huang and Chiu, (2015) submitted that using digital technology will help to focus on individual learners believing that focusing on learners will help to deliver right knowledge in a way that the learners will be able to comprehend.

2. *It Eliminates Physical Restriction to Learning*

Digital leaning removes the physical barrier and restriction and learners can participate in any sessions anytime and anywhere according comfortable for him/her. The COVID-19 pandemic also demonstrated the usefulness of making use of digital technology when physical gathering was strictly disallowed in many countries and still teaching and learning processes were still not hindered. With digital learning, homeschooling can be improved on by synchronous learning, where live chat rooms, or webinars and video conferences allow instruction take place in different locations and at the same time (Education Reform Glossary, 2013). Through technology, the costs of getting physical instructional materials reduced, quality educational program is enhanced, and using teacher's time efficiently is guarantee (American university, school of education, 2020).

3. *It Enhances Innovative Learning and Develops Initiatives in Learning*

Teachers make use of more methods that is technological to make their teaching more fascinating and innovative to student with special needs. Special needs students are able to do their assignment themselves by making use of digital devices using their initiative because of the new method they probably discovered online, doing this makes them to be innovative and engage in self-discovery activities. Digital technology gives rooms for both students and teachers to arouse their innovation ability in education, ad also gives opportunity for mixed opportunities to learn, and participate in online schooling, information and communication technologies that are being used in education are of important value because they offer innovation ideas and instant support to both the students, teachers and the processes used in caring out teaching and learning activities.

4. *Digital Technology Offers Unrestricted Access to Pool of Information*

One of the major significance of digitalization on acquisition of knowledge is the opportunity it offers to access pool of information irrespective of age, place and origin of the user. Digital technology enhances electronic-learning and this allows students with special needs to have unrestricted access to pool of information in their field of study. Digital technologies undoubtedly offer students with special needs an easy and unlimited access to get in-depth information, with opportunities to have quality learning experience and fun, it also helps them practicalize what they have learnt. Digital technology widens the scope at which information can be obtained, and can take care different topics in diverse field of study which is good for learning independently. With technology both in and out the classroom, students will be equipped with 21st-century skills which will be used in their future endeavors.

Hindrances to the Effective use of Digital Technology

1. *Ever-Changing Nature of Technology*

Technology has shown itself in different ways to be used in educational institutions though it has been playing a significant role in all educational aspect, but the frequent change has been a major concern in its used for students with special needs.

2. *Unwillingness to Accept change*

Shikha, Seema and Sweety (2016) reported that the strongest impediment to use of technology is not technology itself neither its changing nature, but people's resistance to the changes that come with the flow of technology. Most of the stakeholders in the field of special education (teachers, administrators, librarians, and parents etc) who are used to a specific type of digital device often resist the change, even when it is obvious that the changes the new technology has brought is better than what they had before. Many teachers do not trust technology to bring intended learning outcome when compared to an instructor and unwilling to change the ways of teaching they are used to, therefore, they tend to show "I don't want attitude" towards any change brought by digital technology (Herold, 2016; Moya et al., 2011; Stantchev et al., 2014)

3. *It Does Not Guaranteed Improved Achievement*

Despite the fact that schools are making huge investments on technology, proofs that individualized learning through digital technology facilitates good performance of student with disability or reduce gaps in achievement are still very small. In a study carried out by OECD, those that critique use of digital technology in education submitted that most country that allowed students of about 15-years old to use computers for learning recorded worst performance in reading and math international tests. This could be attributed to the fact that digital technologies can cause distraction for students and disturb their learning when these

devices are being misused (Sana, et al., 2013; Melanie, 2020).

4. *High Acquisition and Maintenance Cost*

Software development, strong internet and networks and acquiring devices are usually expensive especially when organizing them for use. Despite heightened interest in the use artificial intelligence (AR) and other current technologies, very few schools cannot afford these tools in their classes because the cost of acquiring them is too exorbitant. Thus, the use of technology in classrooms may not be as fast as it should be because of funding, The high cost of procurement and maintenance of these technology devices has limited the use of digital technologies for the education of their students with special needs (Riggs, 2015)

5. *Lack of Good Network Infrastructure*

Some schools lack proper network infrastructure that can process large quantity of eBooks and also distribute digital curriculum at the same time in a short time. Some countries are still unable to put in place strong internet connections some when some advance countries like USA have internet that can download huge data needed to process large digital books. There are good numbers of other facilities that must be in place for maximum use of digital devices, if not they will be under-utilized, facilities such as good power battery, internet service, bandwidth, software and hardware devices also form part of the infrastructure to be put in place. It only takes one small component of network system to fall out of place, and then the whole accessibility system crashes with it. This commonly happens when there are no good infrastructure networks in place.

6. *Lack of Professional Training*

The education institutions will continuously need technical staff who will be operating and maintaining technological tools. For effective and efficient use digital technologies in education for students with special needs, teachers need to undergo training in order to acquire appropriate skills and knowledge. Lack of this training has been a major factor for misuse or underuse of digital technology in education. If all these digital devices are available and teachers cannot make use of it, then the purpose of introducing them in educational system will be defeated because there will not be any impact on the students' performance.

Recommendation

Considering the immense benefits that is accruable in using digital technology in education for students with special needs and the hindrances to its effective use, the following recommendations were made

Emergence of new technologies devices should be accompanied by proper training that will give knowledge and skill to teachers to help them make use of the digital devices in an efficient and effective manner, may be lack of this training that make the user not to change with the trend.

Government should endeavor to put good network infrastructures like strong internet, wi-fi, connection, secured location etc in place in various institutions, this will enhance effective use of the devices.

Using of digital device in education should also be encouraged in all educational institution and factoring its usage into the school curriculum, because it may be a source of income for the students in future.

Conclusion

Without doubt, digital technology is what should be embraced for the education of students with special needs however using it has its own challenges, especially when they are suddenly brought into the educational system. Nevertheless, the fact still remains that there are a lot of advantages which make them indispensable tool to be used in education. so the use of digital technology should be continually encouraged and the opportunities therein should be optimized in order to have a conducive learning environment. In making use of these digital devices, all stakeholders should take the responsibility of how the challenges could be addressed so that smooth operation of the systems would be enhanced.

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Reference

Beebe, M. (2004). *Impact of ict revolution on the african academic landscape*. In CODESRIA Conference on Electronic Publishing and Dissemination. (Pp. 1–2). Dakar.

Chazan, B (2022). What is education? *Principles and Pedagogies in Jewish Education*, 13–21. https://doi:10.1007/978-3-030-83925-3_3

Encarnacion, R. E., Galang, A. D., & Hallar, B. A. (2021). The impact and effectiveness of e-learning on teaching and learning. *International Journal of Computing Sciences Research*, 5(1), 383-397. https://doi:10.25147/ijcsr.2017.001.1.47

Filimban, G. (2008). *Factors that contribute to the effectiveness of online learning technology at Oregon State University*. Ph. D Theses, Oregon State University.

Glossary Of Education Reform. (2013). Synchronous Learning Definition.

Herold, B (2016) Technology in education: An overview. Https://www.Edglossary.Org/Synchronous-Learning/

Loyola School Of Education Blog (2021). What *Is Educational Technology and Why is it Important*. Magazine/Publications/Critical-Practices-For-Antibias-Education

Marshall, James D. (2006). The Meaning of the Concept Of Education: Searching for the

Lost Arc. *Journal of Thought,* 41 (3), 33–37.

Melanie G (2020) *The controversy over digital education technology*. Research Paper, School Of Engineering and Applied Science University Of Virginia

Moreno, R., & Mayer, R. (2007). Interactive multimodal learning environments. *Educational Psychology Review,* 19(3), 309-326.

Motiwalla, L. (2007). Mobile Learning: A Framework and Evaluation. *Computers & Education*, 49(3), 581–596.

Moya, M, Musumba, I, & Akodo, R (2011). Management attitude, support and integration of information communication technologies in higher education in Uganda. *Journal of Modern Accounting and Auditing,* 184090925136019196734 25.

Sana, F., Weston, T., & Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and nearby peers. *Computers & Education*, 62, 24–31.

Selwyn, N. (2011). Education and technology: Key issues and debates. New York: Continuum International Pub. Group.

Shikha D, Seema W & Sweety G (2016), Issues, trends & challenges of digital education: An empowering innovative classroom model for learning. *International Journal of Science, Technology And Management*, 5(5).

Stantchev, V, Colomo-Palacios, R, Soto-Acosta, P, & Misra, S (2014). Learning management systems and cloud file hosting services: A study on students' acceptance. *Computers in Human Behavior,* 31, 612–619.

UNESCO. (2004) Education for all: The quality imperative; EFA Global Monitoring Report 2005; Summary. Paris: UNESCO.