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A Review on the Role of ICT in Enhancing Effective Learning in Higher Educational Institutions

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Abstracts:

This paper explores the role of Information Communication Technology (ICT) in enhancing higher educational learning in the Gambia. The use of ICT in higher education positively impacts teaching, learning, and research. The rapid growth of technology has enabled the higher education system to grow significantly in the last few decades to meet the demand of quality education. This study has shown that ICT is an effective means of widening educational opportunities. The pivotal role that ICT plays in higher education learning is becoming more relevant, and this relevance will continue to grow and develop in the 21st century. Major findings of this study revealed that the acceptance and use of ICT in education positively impact teaching, learning, and research.

Keywords: Teaching and Learning, Research, Information Communication Technology (ICT), Higher Education

1. Introduction/Background of Studies

The new information and communication technologies of the Internet and multimedia have revolutionized the field of education. The use of ICT has been researched and employed as an educational tool by teachers and researchers in many countries in recent years. The appearance of new technologies in our day-to-day activities has made it possible for the use of ICT in education to increase considerably in recent years. The use of ICT in higher education has not only improved the classroom teaching-learning process but also provided the facility for e-learning. Technology has the capacity to promote and encourage the transformation of education from a very teacher-directed enterprise to one which supports more students-centered models. ICT positively affects students' academic achievement and retention. In recent years higher educational institutions in the Gambia are making efforts to change the teaching and learning context through the adoption of technologies. Information is growing at an exponential rate and in a variety of formats, especially in digital media.

Several studies argued that the use of technologies in the classroom is essential for providing opportunities for students to learn in the digital age. ICT enables the use of innovative educational resources and the renewal of learning methods, establishing a more active collaboration of students and simultaneous acquisition of technological knowledge. The notable increase in the use of ICT and its enormous impact is an aspect that cannot go unnoticed in the world of education. Lecturers and learners no longer rely solely on printed books and other library materials for their educational needs. With the Internet and the worldwide net, a wealth of learning materials in almost every subject in a variety of media can be accessed anytime, anywhere.

1.1. Relevance of the Study

There are a lot of benefits derived from the effective use of ICT in teaching and learning. The relevance of the study is basically on the need to explore the role of ICT in enhancing effective learning in higher educational institutions in the Gambia. Foremost is the Government of the Gambia through the line ministry, the Ministry of Higher Education, for good governance, effectiveness, and efficiency of service delivery. No government or institution can survive without making ICT one of its main activities. ICT is one of the facilities inevitable in as much as education is concerned.

Moreover, it is useful for higher educational institutions in the Gambia as it will serve as resource material for the effective utilization of ICT applications. The study is useful to the ICT professionals who are responsible for designing online courses and e-learning platforms. Furthermore, the study is relevant to students, lecturers, and researchers as it will enable them to develop proper mechanisms for the easy storing and retrieval of information. The study will provide improved performance in terms of the teaching and learning abilities of students, lecturers, and researchers.

2. Discussion

Technology is becoming an integral part of today's learning environment day by day, and both researchers and practicing educators are constantly exploring new ways in which technology can be enhanced. Higher education has undergone profound transformation due to recent technological advancements. In the 21st century, the term technology is

an important issue in many fields, including education. This is because technology has become the knowledge transfer high in most countries. ICT is defined as a varied combination of technological equipment and resources for the purpose of information creation, management, communication, dissemination, and storage (Bluton, 1999). Latwal, Gopal S. et al. (2021), in their publication "Role of ICT in Higher Education: Trend, Problems, and Prospects", discussed the role of ICT in higher education. Their publication focused mainly on technological advancements in ICT education, the perceived role of ICT in the teaching-learning transaction, and pedagogy for teaching learning in the 21st century. The authors dwelt extensively on skills development through ICT in education, artificial intelligence, and policies for integrating ICT in higher education. Their publication further provides an informative collection of chapters on ICT and data analytics in education, helping to lead the digital revolution in higher education. ICT helps students not only to learn more effectively but also to find related knowledge and information for learning. ICT in higher education is used to develop course material, deliver content, share content, and effectively communicate between teachers and learners. It is an effective and influential instrument for providing educational opportunities. Brush, Glazewski, and Hew (2008) have stated that 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 applying ICT.

The study revealed the importance of ICT as a significant tool in achieving Institutional objectives. Higher educational system has grown exponentially in the last few decades to meet the demands of quality education. This aspect further gets momentum due to swift advancements in information communication technology. There is a widespread belief that ICT can and will empower teachers and learners, transforming teaching and learning processes from being highly teacher-dominated to student-centered. UNESCO (2002) highlighted that, ICT acts as the foundation of the contemporary world. Thus, understanding this technology and its fundamental concepts is considered part of the core of education. Educational institutions may utilize ICT to enrich the students with skills and knowledge for the 21st century (Andoh, 2012). ICT help to make complicated things simple to comprehend by stimulations that once more add to real learning situations (Hussain I. et al., 2017). Thus, ICT may act as a facilitator of dynamic learning and higher-order thinking (Alexander, 1999).

The learning environment in which ICT is used requires certain facilities and resources. Facilities include basic infrastructures such as electrical wiring, internet access, lighting, air-conditioning, and space. Research studies in the past decades have shown that ICT is an effective means of widening educational opportunities. However, most teachers neither use technology as an instructional delivery system nor integrate technology into their curriculum (Asfhari M. et al., 2009). Asfhari M. et al. (2009) further indicated that educational institutions must develop a technology plan to use technology effectively and efficiently for teaching, learning, and administrative purposes. Also, some issues that must be considered include staff and student development in ICT-related skills, curriculum and assessment, ICT facilities and resources, and support teams. Information communication technology has become one of the basic building blocks of modern society within a very short time. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core education, alongside reading, writing, and numeracy.

It has been argued that ICT is a principal driver of economic development and social change worldwide (Kozma, 2005; Leech, 2008). In many countries, the need for economic and social development is used to justify investments in educational reform and in educational ICT. Kelles-Viitanen (2003) also argued that ICT plays a major role in all aspects of national life: in politics, economic life, and social and cultural development. She further argued that ICT is rapidly transforming how people do business, access information and services, communicate with each other, and even entertain themselves. According to Kozma (2005), education has been identified as one of the public sectors most influenced by technological developments. All governments aim to provide the most comprehensive education possible for their citizens within the constraints of available finance.

Kington et al. (2002) asserted that the use of ICT by students to produce their work motivated them to complete work and redraft work to reach the required standard. Utilization of ICT, as stated by Sharma (2003) in his article "Barriers in using technology for Education in Developing Countries", can enhance outcomes, instruction, and administration and create important abilities in the underprivileged group and equally influence educational instruction and research process. Educational institutions should make the best use of the opportunities ICT offers, especially in keeping and maintaining effective records.

Effective record keeping helps institutions to conduct business and deliver services consistently and equitably. While an institution's records management is not profit-centered, handling records incorrectly can lead to financial penalties or litigation. The relationship between ICT and records management is quite essential. ICT and records management are both concerned with the creation, storage, accessibility, and security of digital information; thus, records management should move along with the current trend of technology. Hare C. (2004) maintained that using ICT helps facilitate effective record keeping. For instance, educational institutions may be unable to defend themselves against inappropriate claims about their products or services or their employee's actions, and in the absence of adequate student records, business operations may be compromised, and the rights of students impaired. Tale and Alefaio (2005) further observed that information and communication technology (ICT) has expanded and presented opportunities for record-keeping in developing countries. Educational institutions must endeavor to utilize the countless opportunities that technology provides for the proper keeping of records, most especially students' records. The higher education sector must assume the responsibility to gradually implement all the technologies that may favor students in some way and ensure that they learn to use them in a world where they are already part of professional life and their social environment. The aim of both records management and ICTs is to support, protect and enable the business of the organization in a cost-effective manner. As stated by Johnston and Bowen (2005) in their article "Benefits of electronics records management

system: a general review of published and some unpublished cases," the basic benefits that are easily observed in an organization are:

- How the work is done more easily because the effort needed is less,
- The work is done more quickly,
- The quality of services is increased, and
- It is easily transparent afterwards

The orderly and efficient flow of information enables it to perform its mission successfully and efficiently. For Dede (1998), using ICT can help improve memory retention, increase motivation and generally deepen understanding. It is generally believed that ICT can empower lecturers and learners, promote change and foster the development of 21st-century skills. However, data to support these beliefs are still not adequate. Previous research revealed that ICT can empower teachers and learners and help in the transformation from teacher-oriented to learner-centered. This transformation will result in increased learning gains for students. However, data to support this belief are still very limited. ICT has the potential to innovate, accelerate, enrich, and deepen skills to motivate and engage students to help relate school experience to work practices, create economic viability for tomorrow's workers, as well as strengthen teaching and help schools change (Davis & Tearle, 1999).

Students have started to appreciate the ability to undertake education anywhere at any time. This flexibility has heightened the availability of just-in-time learning and provided opportunities for more learners who previously were constrained by other commitments (Young J. 2002). According to Chien, Wu, and Hsu (2014), students in schools have high expectations of ICT integration in the classroom as the new generation is born and grows with technologies. It could be defined as a digital-native phenomenon. The younger the students, the higher their expectations of ICT integration in the classroom. ICT often speed up the learning process through the availability of various data and information, method of teaching, as well as a wide array of studies and examples to support them. The poor use of ICT in enhancing information flow in organizations is mainly due to inadequate ICT facilities and a lack of enough computer skills among employees. Managing accurate and up-to-date information is critical in the digital information era. Organizations need employees who are skilled in ICT and are abreast with the latest technologies to create, store and retrieve information effectively and efficiently (Buchanan, S.A. et al. 2007).

One of the major challenges of using ICT in enhancing effective learning is that many lecturers are not skilled enough to use ICT applications. Similar findings have been observed in Mamun and Tapan's study, where they stated that teachers' lack of knowledge and skills regarding technology limit integration as well as utilization of ICT in teaching-learning activities (Mamun & Tapan, 2009). The use of ICT will enhance not only the learning environment but also the next generation for future lives and careers.

Additionally, Chowdhury et al. (2018), in their study "Impact of ICT Integration in the Higher Education Classroom: Bangladesh Perspective", revealed that most lecturers still find it difficult to understand ICT-specific benefits or how it can be used to achieve maximum benefits. Their study further revealed that aged teachers' belief system could be a reason they are not positive towards ICT integrations. Similarly, a small group of young teachers does not see any considerable benefit to learners while using ICT rather than a burden. This assertion is supported by some researchers who believe that despite the numerous advantages of ICT in teaching and learning, there is still a contrasting perception among teachers regarding the benefits of using ICT (Blanskat et al., 2006).

The Government of the Gambia has realized the crucial role ICT plays in the educational system. In this respect, higher educational institutions in the Gambia are designing policies that will accelerate the process of transforming their education system into an information-knowledge-based system. The notable increase in the social use of ICT and their enormous impact is an aspect that cannot go unnoticed in the world of education. ICT is becoming a fundamental tool for lecturers, students, and researchers. The use of information communication technology may improve learning when coupled with more learner-centered. The use of technology in education contributes a lot to the pedagogical aspects in which the application of ICT will lead to effective learning with the help and support of ICT elements and components (Jamieson- Procter et al., 2013). With the development of learning technologies in the 21st century education system has changed rapidly. This is due to the capabilities of technology to provide proactively easy access and comprehensive teaching and learning environment. The benefits of harnessing ICT for teaching and learning in higher education are obvious.

First, it can help higher education programs to reach out to more learners. Many of them are non-traditional learners and those from underdeveloped and remote areas who would have otherwise been left behind due to the capacity limitation of campus or classroom-based environments. Volman & Van Eck (2001) stated that using ICT creates a powerful learning environment, transforming the learning and teaching process in which students deal with knowledge in an active, self-directed, and constructive way. ICT provides both learners and instructors with educational affordances and possibilities. Through ICT, learning can occur anytime and anywhere. Effective use of technology can motivate students, make classes more dynamic and renew teachers' enthusiasm as they learn new skills and techniques.

The use of ICT in education presents a unique opportunity to solve multiple challenges quickly and at a low rate. ICT in higher education improves the teaching-learning process and provides online learning facilities to thousands of learners who cannot afford the benefit of higher education due to several factors, such as cost and geographical location. The rate of new technological change must keep pace with the higher education systems in terms of enhancement in knowledge and skills to meet the demand (Hong & Songan, 2011).

ICT plays a vital role as a strong agent for change in many educational practices, such as conducting online classes, paying online fees, and accessing online books and journals. ICT in higher education is significant and includes satellite communications and the Internet, which are a revolution in distance learning, offering flexible opportunities (Gutmaan,

2003). The higher education sector has been undergoing a revolutionary change in the past decade, driven by the Internet and e-learning facilities (Sife et al. 2007).

3. Conclusion

Research studies in the past decade have shown that technology is an effective means for widening educational opportunities. ICT helps instructors and learners to be fully cooperative in the teaching and learning process.

Technology is becoming an integral part of today's learning environment, as stated by several researchers who dwelt on the positive role of ICT in enhancing effective learning. The study concludes that both researchers and practicing educators are constantly exploring new ways in which technology can help facilitate learning. ICT promotes students' lifelong learning and improves their knowledge and skills by encouraging them to explore and discover new technological applications. The study established that there is a consensus among researchers that the use of information communication technology positively influences the study outcomes of students. Since students are familiar with technology and will learn better within a technology-based environment, the issue of ICT integration in schools, specifically in the classroom, is vital.

4. Recommendations

- Scholars in higher learning institutions in the Gambia need to acquire good skills and knowledge in using ICT applications to improve their teaching methods to meet the demand for 21st-century teaching skills.
- Proper infrastructure should be put in place to use ICT applications effectively.
- Adequate funding should be provided to initiate, promote, develop, and implement ICT policies in the educational sector.
- Higher education teaching personnel need to be reskilled and upskilled to increase their ICT and quality assurance, and pedagogical competencies.
- Pedagogical approach to deal with learning has been evolving because of the rapid growth of technology in the past few decades. Thus, there is a need for further research to be conducted in universities and colleges in the Gambia on the use of ICT applications.

5. Conflicts of Interest

The author declares no conflict of interest.

6. References

- i. Alexandra J. O. (1999). Collaborative design, constructivist learning, information communication technology immersion and electronic communities: A case study. *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, 2, 1-2.
- ii. Andoh, C. B. (2012). "Factors influencing teachers' adoption and integration of information and communication technology into teaching: a review of literature." *International Journal of Education and Development Using Information and Communication Technology*, 8 (1), 136-155.
- iii. Asfari M. et al (2009). "Factors affecting teachers' use of information communication technology," *International Journal of Instruction*, 2(1).
- iv. Blanskat, A. Blamire, R. and Kefala, S. (2006). The ICT impact report: A review of studies of ICT on Schools in Europe. Brussels: European Schoolnet.
- v. Bluton, C. (1999). New Directions of ICT use in education. UNESCO World Communication and Information Report.
- vi. Buchanan, S.A., Stratton, C., Sun, Y. and Chaudhary, A. (2017). "Survey research on tasks and competencies to inform records management education." *Records Management Journal*, 27(1), 2-18. <https://doi.org/10.1108/RMJ-11-2015-0041>
- vii. Brush, T., Glazewski, K.D. and Hew K.F (2008). Development of an instrument to measure pre-service teachers' technology skills, technology beliefs and technologies barriers, *Computers in Schools*, Vol. 25, 112-125.
- viii. Chien S.P., Wu, H.K. and Hsu, Y.S. (2014). "An investigation of teachers' beliefs and their use of technology bases assessment," *Computers in Human Behavior*, 31, 198-210.
- ix. Chowdhury, S. et al. (2018). "Impact of ICT integration in the higher education classroom: Bangladesh Perspective," *Journal of Education and Practice*, 9 (32).
- x. Davis, N.E., and Tearle, P. (1999). A core curriculum for telematics in teaching training. Available at www.ex.ac.uk/telematics.T3/corecurr/tteach.98.htm
- xi. Dede, C. (1998). Learning with technology." Yearbook of the Association for Supervision and Curriculum Development. (Alexandra, VA: ASCD) 199-215.
- xii. Guttman, C. (2003). Education in and for the information society. UNESCO publication for the World Summit on the Information Society. Paris, France UNESCO.
- xiii. Hare, C. (2004). Electronics records management training package. London: Northumbria University.
- xiv. Hong, K.S. and Snogan, P. (2011). ICT in the changing landscape of higher education in Southern Asia. *Australasian Journal of Educational Technology*, 27(8), 1276-1290. <https://ir.unimas.my/id/eprint/3465/>
- xv. Husain, Ishtiaq. et.al (2017). "Effect of information communication (ICT) on students' academic achievement and retention in chemistry at secondary level". *Journal of Education and Educational Development*, Vol. 4 No. 1, 73-93. <https://eric.ed.gov/?id=EJ1161529>

- xvi. Jamieson -Proctor, R. Albion, P., Finger, G., Cavanagh, R., Fitzgerald, R., Bond, T. and Grimbeek, P. (2013). "Development of TTF TPACK Survey Instrument, *Australian Educating Computing*," 27(3), 26-35.
<https://www.learntechlib.org/p/133312/>
- xvii. Kelles -Viitanen, A. (2003). The role of ICT in poverty reduction. *The Finnish Economy and Society*. 82-94.
- xviii. Kinton, A., Harries, S., and Leask, M. (2002). Innovative practices using ICT in schools: findings from two case studies. *Management in Education*, 16(1), 31-35.
- xix. Latwal, Gopal S. et al. (2021). Role of ICT in higher education: trend, problems, and prospects. New Jersey: Apple Academic Press. ISBN: 978 17746392 45.
- xx. Kozma, R.B. (2005). National policies that connect ICT- based education reform to economic and social development. *An Interdisciplinary Journal on Human in ICT Environments*, 1 (2), 117-156.
- xxi. Leach J. (2008). Do new information and communication technologies have a role to play in the achievement of education for all? *British Educational Research Journal*, 34(6), 783-805.
- xxii. Mamun, M. and Tapan S. (2009). Using ICT in teaching and learning in Polytechnics Institutes of Bangladesh: constraints and limitations. *Teacher's World Journal of Education and Research*, 33-34, 207- 217.
- xxiii. Salmon G. (2004). E. Moderating: the key to online teaching and learning. London: Taylor and Francis.
- xxiv. Sife, A.S., Lwoga, E.T., Sanga, C. (2007). New technologies for learning and teaching: challenges for higher learning institutions in developing countries. *International Journal for Education and Development Using Information and Communication Technology*, 3 (2), 57-67.
- xxv. Tale, S. and Alefaio, O. (2005). Records management in developing countries challenges and threats towards a realistic plan. ACARM Newsletter, Issue 37, winter. <https://www.fichier-pdf.fr/2011/03/18/37-6-records-management-in-developing-countries-challenges-and-threats/>
- xxvi. Young, J. 2002. The 24 hours professor. *The Chronicle of Higher Education*, 48 (38), 31-33.
- xxvii. UNESCO (2002). Information and communication technology in education: a curriculum guide for schools and programs of teacher development. Division of higher education.
<http://unesdoc.unesco.org/images/0012/001295/129538e.pdf>.
- xxviii. Sharma, R. (2003). Barriers to using technology for education in developing countries. *Computer and Education*, 41 (1), 49-63.
- xxix. Volman, M., & Van Eck, E. (2001). "Gender equity and information technology in education: The second decade." *Review of Educational Research*, 71(4), 613-634.