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Online Teaching and Learning as a paradigm for gender – inclusiveness in African Higher Education

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ABSTRACT

This article focuses on adoption of online education-teaching and learning as a model for gender inclusiveness in African Higher Education with its major challenges and benefits. It also proffers solutions to gender inequality and non inclusiveness in higher institutions of learning which is a contributor to the overall marginalization of women especially in Science, Technology, Engineering, Mathematics and Medicine (STEMM). Observation, survey and review of different literatures were the exploratory research design adopted to gather information. Perception, issues and challenges of students, lecturers, parents and policy makers during the delivery of online teaching and learning were identified. The world as an entity has its various challenges, be it health, climate change, war, economic recession which could cause setbacks or lead to innovation or transformation. Some of the issues and challenges identified were found consistent with the previous literature. In this study, however, issues related to the students, lecturers, institutionalization of gender mainstreaming and the curriculum were identified. The challenges identified include research methodologies, staff development, social and physical infrastructures, finance, technology, students' management and support, equity, pedagogy, time and attitude. This study therefore opined that the effectiveness of administering online teaching/learning in universities and other institutions as a paradigm for gender –inclusiveness in African Higher Education cannot be overemphasized. The government, policy makers, university administrators, students and other stake holders in African Higher Education should embrace digital-first, complete and curriculum - aligned teaching and learning. Infrastructural development, systematic response, access, equity and inclusion, adaptation and well – being in challenging times and environment, technical and other supports for the students and the teachers; and provision of digital resources are also mandatory. It can be concluded that recent occurrences which bring together a wealth of information regarding the imperatives of transformation in Africa's higher education systems and sensitivity to the challenges of gender equality in ensuring equity of access at all levels and in all areas of the higher education sector is paramount.

Keywords: Online teaching, learning, gender, higher education, inclusiveness, learning platforms

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1. INTRODUCTION

1.1 The Context of African Higher Education

Higher Education is any of the various types of education obtained in postsecondary institutions of learning or tertiary education leading to award of an academic degree. It is also referred to as third level or post-secondary education. Higher education is not just about earning a degree; it is about personal growth and independence, learning new ways of thinking and acquiring problem-solving skills to navigate the new, social settings. Higher education includes education received in public or private Universities, Colleges, Technical Training Institutes like Polytechnic or Monotechnic, and seminaries. The United Nations International Covenant on Economic, Social and Cultural Rights declares that “higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by progressive introduction of free education” (Tremblay et al., 2012; Aina, 2013). Higher education includes teaching, research, and other public outreach activities.

There are lots of negative criticisms about Higher education regarding production of half baked graduates, grade inflation and the supply of graduates in many fields of study that exceeds the demand for their skills, aggravating graduate unemployment in many nations. Qualities employers are looking for like critical thinking, decision making, problem solving, ethical judgment, and analytical reasoning skills are also claimed to be lacking in many graduates (Tremblay et al., 2012; Aina, 2013; Coales and Morrison, 2016; Kaplan, 2021). Higher education represents a critical factor in innovation and human capital development and plays a central role in the success and sustainability of the knowledge economy (Dill and Van Vught, 2010).

There is dramatic growth of higher education worldwide, as depicted in Figure 1. The UNESCO Institute for Statistics (UIS) estimated that there were roughly 32.5 million students enrolled in higher education worldwide in 1970. In the year 2000, this estimation increased to nearly 100 million and in 2010 to 178 million. This translates into 4.3% average annual growth in tertiary enrolment, a very rapid growth when compared to the 1.6% average annual growth in the world population over the same period (Tremblay et al., 2012; UNDP, 2012). Figure 1 also reveals an accelerating development starting in the mid-1990s, with a 5.9% average annual growth of higher education enrolments in the first decade of the 21st century. The number of higher education students is forecast to further expand to reach 263 million by 2025 (British Council and IDP Australia, cited in Davis, 2003 and Daniel, 2009).

Over the past four decades, the growth in tertiary enrolments was more obvious in emerging regions, notably Sub-Saharan Africa (8.4% average annual growth), the Arab states (7.4%), East Asia and the Pacific (7%), Latin America and the Caribbean (6.4%) and South and West Asia (6%). More recent trends suggest that the greatest growth is now taking place in South and East Asia. It is projected that China and India alone will account for over half of the global increase in student numbers in the years to come (Kapur and Crowley, 2008). Moreover, by 2020, they will account for 40% of young adults (aged 25-34) with a tertiary degree (OECD, 2012a).

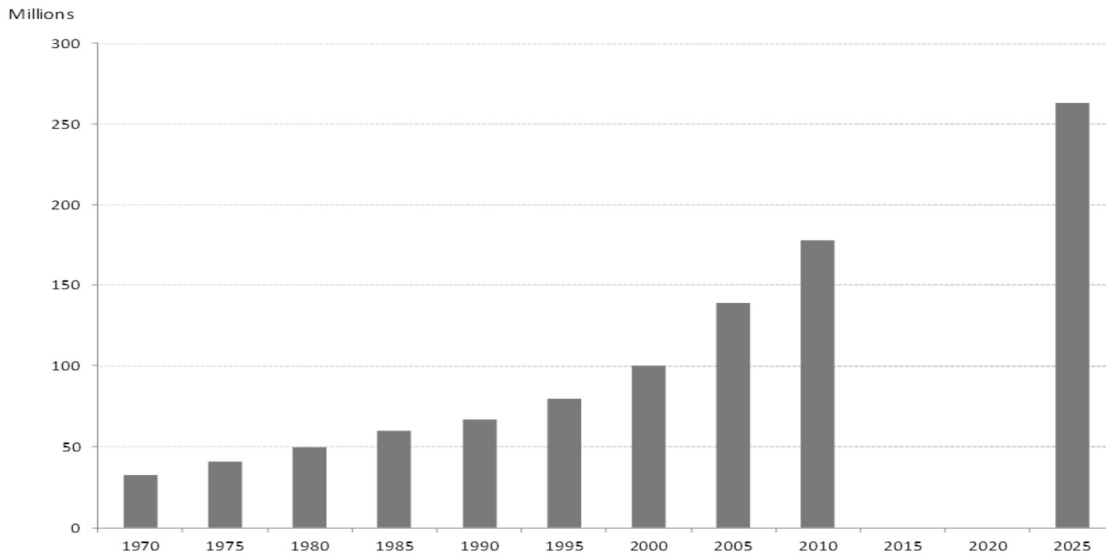


Figure 1: Trends in Higher Education enrolments worldwide, 1970-2025 (Source: UNESCO)
Source: UNESCO Institute for Statistics Data Centre for 1970-2010 and Daniel (2009) for 2025 forecast.

It is reported that a key feature behind this wider participation is the increasing female participation in higher education. According to data from the UNESCO Institute for Statistics, women made up 41% of higher education enrolments worldwide in 1970. They achieved parity with men in 2005 at the global level and now slightly outnumber them with about 51% of global enrolments (Tremblay et al., 2012). The latest data from the OECD's *Education at a Glance* underlines that this trend is more marked within OECD countries, with significantly higher entry rates for women relative to men, both in undergraduate university programmes (69 vs. 55% on average) as well as vocationally-oriented programmes (19 vs. 16%). In 2010, women also reached parity with men with regards to access to advanced research programmes at entry rates of 2.8% for both (OECD, 2012b).

Also, according to some other reports, public demand for higher education has increased, stimulated by growing upper-secondary completion rates. Additional factors include social mobility expectations, growing female participation, as well as democratization and urbanization processes and independence movements in the developing world. The shift towards postindustrial economies has also affirmed that an educated workforce is essential for economic development and has heightened the demand for white-collar workers in the public sector and service industries. Finally, the accelerated pace of technological change has further stimulated access to and participation in higher education (Gibbons, 1998; Schofer and Meyer, 2005 and Altbach et al., 2009). These observations are however not consistent with Nigeria's situation especially for the female gender because there is increasing withdrawal of female students from schools due to many social reasons like marriage, business, parental influence etc. In addition to this, insurgency in North Eastern Nigeria has greatly affected female enrollment not only in higher education but in other forms like primary and secondary education (Abdulrahmon and Oloyede, 2022).

1.2 Proliferation of Higher Education Institutions

It is important to bring into limelight proliferation of Higher Education Institutions. Several countries rely extensively on private providers to meet the growing demand for higher education, resulting in a massive expansion of the number of private higher education providers. This trend is prevalent in countries with poor public funding of higher education, or resources have been limited to accommodate any additional demand through public higher education (Levy, 2008; Bjarnason et al., 2009). For instance, in Nigeria, according to National Universities Commission, there are 197 Universities as at 2022, 99 were private, federal universities amounted to 45, and state owned universities are 53 (NUC, 2022). There are 29 federal, 4 private and 26 state owned Polytechnic established to train technical middle level manpower according to National Board for Technical Education (NBTE). There are 152 colleges of education in Nigeria, consisting of 27 federal, 82 private and 54 state colleges of education.

These institutions addresses students' needs, enabling higher levels of higher education attainment, improving social mobility, and serving the needs of the labour market better (Tremblay et al., 2012). Notably, Higher education facilitates the skills, knowledge and the expertise that are essential to economic and social development in low income countries (Aina, 2013) by training of professionals, wealth creation, international competitiveness and innovation in science and technology.

Despite all these, the impact of COVID 19 pandemic is making traditional higher education system outdated. This has called for stake holders' intervention in providing an inclusive teaching model which otherwise had not been the accepted norm. This mode of education is Online teaching and learning. Thus, giving rise to an academic revolution in education particularly higher education (Altbach et al., 2009).

2. ONLINE TEACHING AND LEARNING

Online teaching and learning is faculty-delivered instruction via the Internet or process of educating others via the internet. Online instruction includes real-time (synchronous) and anytime, anywhere (asynchronous) interactions. Various methods can be used, such as one-on-one video calls, group video calls, and webinars. Teaching can be from any location with accessibility of time and place, variety of learning styles, and enrollment of students from various backgrounds and geographical areas. It has many benefits being affordable, efficient, more flexible, personalized, accessible, allowing easier communication and deeper connections. It is also called Web-based learning or eLearning. Many years back, it would have been difficult to imagine high quality instruction delivered online, but today, in the digital age, and with many human and environmental issues like climate change, pandemic it has become a reality. Faculty use pedagogical strategies for instruction, student engagement, and assessment that are specific to learning in a virtual environment (Johnson et al., 2012; Gautam, 2020).

2.1 Challenges of Online teaching and Learning

Online learning is a great alternative to traditional Higher Education Institutions, especially for people who cannot afford the time and money to take real courses. The paradigm shift to online teaching and learning did not however come without challenges as communication and education delivery technologies are continuing to advance at accelerating rates (Johnson et al., 2012). Technology issues (internet connectivity) or lack of electricity in many African countries especially in rural areas is a setback.

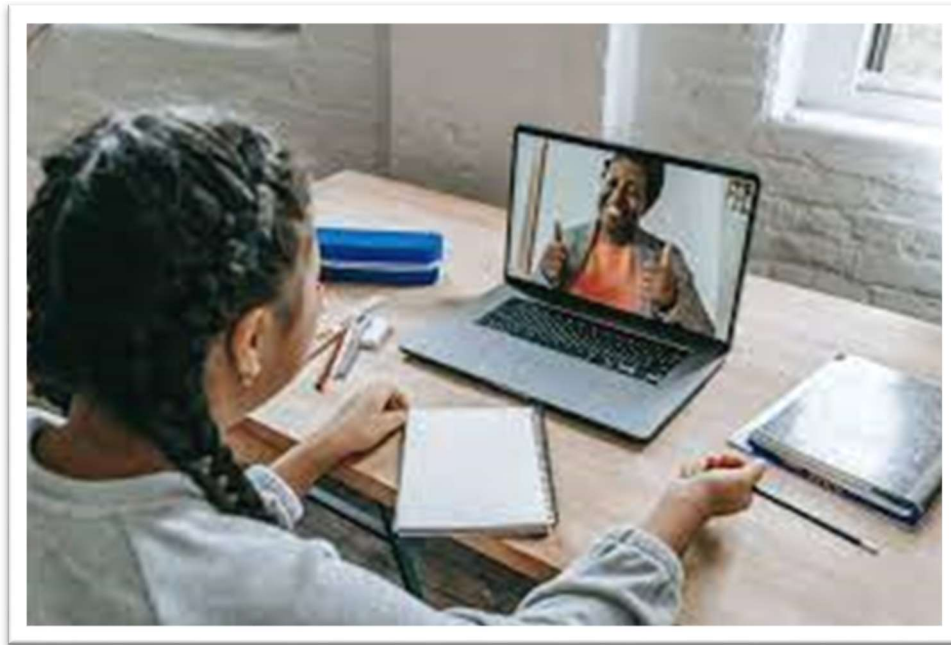


Fig 2: Typical Online Learning Scenario

Source: <https://www.learnworlds.com/online-learning-platforms/>

Distraction by social media or other sites, inability to focus on screens, sense of isolation (minimal physical interactions between students and teachers), and lack of Teacher Training for basic understanding of using digital forms of learning are the major disadvantages. In many Africa countries, teachers lack very basic understanding of technology. Sometimes, they do not even have the necessary resources and tools to conducts online classes. Management of screen time and health hazards associated with spending so many hours staring at a screen, development of bad posture and other physical problems due to staying hunched in front of a screen are also serious issues. Other issues include keeping pace with rapid advances in communications and social networking technologies; accommodating the increased costs of technology into existing mechanisms for financing higher education; and taking full advantage of the educational opportunities (Elaine Allen and Seaman, 2011; Johnson et al., 2012; Tremblay et al., 2012; Gautam, 2020).

The recent and rapid emergence of Massive Open Online Courses (MOOCs) using online technologies, and accessible to students worldwide, has raised questions about credibility of degree credit and granting but it has increased participation of youths especially the female gender (Tremblay et al., 2012). Oloyede and Ofole. (2016) reported the effect of media usage, religiosity and gender as determinant of performance in chemistry subject. Online delivery of education is also expanding rapidly to meet the career-specific education and training needs of adult populations at degree or certificate level, important for social advancement and economic development (Prescott and Ewell, 2009).

2.2. Mobile Learning

Another form of online learning is Mobile learning known as mLearning and is a new way to get access to a variety of content available online through the use of a mobile phone. Mobile learning is the easiest way for students to get help in recent times. Many schools and colleges are supporting the concept of eLearning and mobile learning. In Nigeria, for instance, Osun State government supported secondary school students with mobile phones already loaded with educational applications for example “uLesson” application popular in Africa while mandating them to use them for educational purposes only. This is beneficial for the students and adults if used appropriately. Many Higher Education Institution are also looking into this mode of learning. However, it has its own challenges.

2.2.1 Disadvantages of Mobile Learning

Mobile learning has some disadvantages such as software and hardware issues. Software is an application that runs on a device according to the instructions embedded in the software at the time of coding. Software compatibility issues, not upgrading to a new version, regular system crashes, and so on are some of the issues that hinder the working of the software, thereby interrupting smooth mobile learning experience. Hardware uses physical devices which can wear out after a period of time due to overuse, dust, and using the device roughly. Distraction and misuse are also major problems. Rather than learning, students engage in social media websites, chatting, sharing pictures or playing video games, fun seeking, thereby wasting time (Gautam, 2020).

2.3 Distance and Open Education versus elearning

Student demands are changing in recent times as they seek courses that enable them to update their knowledge and skills throughout their working lives to satisfy labour market needs, from the most suitable providers, rather than studying a traditional clearly defined programme at one institution (OECD, 2008).

For instance, traditional universities are increasingly expanding their offer to include short-cycle courses and more vocationally oriented degrees and vice versa. Modes of delivery have also considerably expanded. Indeed, the traditional mode of full-time and campus-based attendance is ill-suited to the needs of adults and lifelong learners who often undertake their studies while working and supporting a family. The development of more flexible ways of provision such as distance learning and elearning has improved access to a wider range of student populations and contributed to meeting increasingly diverse demand (OECD, 2005).

These are also seen as more cost effective alternatives to traditional modes of delivery (Salmi, 2000). New technologies have also brought about changes in approaches to teaching, especially at the under-graduate level, with standardized courses often delivered online, allowing for different use of classroom time with more small seminars and interactive discussions, and greater time spent with students on their individual projects. This mode of study favours the female gender.

3. GENDER –INCLUSIVENESS IN AFRICAN HIGHER EDUCATION

Gender inequality and non inclusiveness in higher institutions of learning is a key factor that contributes to the overall marginalization of women and socio-economic inequalities in the society (Mama, 2006; Aina, 2013; Abdulrahman and Oloyede, 2022). This is also greatly manifested in non participation in Science, Technology, Engineering, Mathematics and Medicine (STEMM), gender bias in science curricula, instruction, and assessment (UNESCO, 2012 and 2017; Oloyede and Ofole, 2016). Emerging transformations in higher education requires gender-balanced human resource development at national and International levels. Quest to bridge gender gaps in both private and public lives has been the topic at many stakeholders meeting in the years back but little success has been achieved particularly in Science, Technology, Engineering, Mathematics and Medicine.

Now, advocating online teaching and learning as paradigm for gender inclusiveness is seen as a way for improved participation of women in Higher education. The *Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)*, specifically targets women's empowerment and gender equality at all levels of the education system (Aina, 2013) but Africa higher education continue to be male-dominated and women, especially those from socially and economically disadvantaged backgrounds, have a very low presence in these institutions. Report has it that Nations with higher levels of female enrolment in education have higher over all levels of economic productivity (Kwesiga, 2002; MAringe and Ojo, 2017).

Academics and academic administrators working in African Higher education sector should be sensitive to the challenges of gender equality and ensure equity of access at all levels and in all areas of the higher education sector and curriculum (Grünberg, 2011; Miroiu, 2011). A Gender Responsive Collaborative Learning Strategy (GR-CLS) based on Universal Design for Learning (UDL) principles was designed in other to ensure gender equality in science education by mainstreaming gender components into the pedagogical delivery of science instruction (Akhigbe and Adeyemi, 2020). The gender gap in access to education is one of the areas that differentiate economically advanced countries from the developing economies. Women in developed countries have benefitted from the expansion of educational opportunities in contrast to developing countries, especially Africa, where historical, cultural, and economic factors continue to hinder women's chances of obtaining formal education, especially post secondary education (Aina, 2013; Abdulrahman and Oloyede, 2022).

A major flaw in higher education training in Africa, is the inability to focus on women's experiences and realities in analytical discourses of social life; and the under-representation of women as objects of research. In a number of African societies, current changes in the economy, social structures and household composition is now increasingly being challenged by low educational attainment of boys; high rate unemployment among youths; a higher share of female headed households; and increased entry of women into the labour force. The current economic realities therefore make investment in the girl child education more of a right, than a privilege. Invariably, this has reduced gender inclusiveness in higher education (Aina, 2011; Okali, 2011). Another factor is that, at the inception of higher education in Africa, university education generally favoured men due to the prevailing socio-cultural factors, and gender-blind policies in the education sector. Thus, current data continue to show that women in the academia in Africa are under-represented in high status and rewarding positions. Gender inequality exists in enrolment, staffing and appointment into top management positions (Assié-Lumumba, 2007).

4. THE WAY FORWARD

- (i) Higher Education Institutions should maintain globally competitive research base, and improve the dissemination of knowledge for the benefit of society at large. Online teaching or learning or “Blended” instruction in which classroom time is augmented through internet-based student-faculty interaction or student-to-student networking is now the norm in many programmes offered in some higher education Institution like University of Ibadan, Nigeria. Platforms like LMS (Learning Management System) are designed to assist in the eLearning process. This will go a long way in increasing women participation.
- (ii) There is strong evidence that students still base their enrolment decisions largely on the reputations of Higher Education Institutions, particularly when engaging in mobility but with the advent of online teaching and learning, mobility has greatly reduced and this could lead to a paradigm shift in women participation in Higher education.
- (iii) In terms of wages, science, technology, engineering, mathematics, and medicine (STEMM) are low while business, accounting, arts like music generally offer the highest wages and best chances of employment. This has reduced participation in STEMM courses. However, women should be motivated to enroll in these courses with greater incentives. Digitalization of these courses to meet the 21st century demand would improve gender participation. Policies to correct age-long discrimination against women, decision on - staff recruitment, retention, professional development and promotion are important for planning and development.
- (iv) Stakeholders in higher education should invest in training teachers/lecturers with the latest technology updates so that they can conduct their online classes seamlessly. Changing online environment represents a great opportunity for learning. Continuous training and staff development to discover how to learn using all available communication channels and choosing the ones that best suit a person’s style of filtering the information is paramount as this would reinforce gender equality policies and affirmative action design.
- (v) The curriculum, research methodologies, technology, students' management and support, equity, pedagogy, time and attitude with regards to online teaching and learning should be gender friendly. Finance is also very important for data, laptop, mobile phone purchase. Authorities involved need to support staff and students especially the female gender for better online education experience.
- (vi) A good solution to health hazards associated with screen usage is to give the students plenty of breaks from the screen to refresh their mind and their body.
- (vii) Societal norms and constraints, policy priorities, and contradictions should be eradicated and made to be gender sensitive.
- (viii) To broaden higher education opportunities in Africa especially for the female gender, curriculum review, youth mobility schemes, employability, and competence, digital strategies, tools and policies to implement quality assurance systems should put in place.

5. CONCLUSION

This study therefore opined that the effectiveness of administering online teaching/learning in universities and other institutions as a paradigm for gender –inclusiveness in African Higher Education cannot be overemphasized. The government, policy makers, university administrators, students, lecturers and other stake holders in African Higher Education should embrace digital-first, complete and curriculum - aligned teaching and learning. Infrastructural development, systematic response, access, equity and inclusion, adaptation and well – being in challenging times and environment, technical, financial and other supports for the students and the teachers; and provision of digital resources are also mandatory.

It can be concluded that recent occurrences which bring together a wealth of information regarding the imperatives of transformation in Africa’s higher education systems and sensitivity to the challenges of gender equality in ensuring equity of access at all levels and in all areas of the higher education sector is paramount. Focus on learning outcomes is essential to inform diagnosis and improve teaching processes and student learning. Institutions should benchmark the performance of their students against their peers as part of their improvement efforts.

6. RECOMMENDATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The following recommendations are made:

At the lower level, improved sensitization on girls participation in higher education is paramount. It has been suggested that Science teachers who aspire to create a gender inclusive learning environment should adopt the gender responsive collaborative learning instructional model designed and implemented in the study. Science courses should embrace virtual laboratory as an alternative to hands-on laboratory as this would go a long way in promoting gender inclusiveness. Pedagogic trainings and professional development course that focus on how to design and implement science lessons that incorporate gender responsive pedagogies and online teaching and learning should be prioritized.

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