



Disruptions in Higher Education Instruction Escalate the Query, "What, in Practicality, is Polytechnic Education in Nigeria?"

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Abstract

The significance of developing polytechnic education was extensively discussed in this article, focusing on the objectives of polytechnic education in Nigeria. The authors argued that the global disruptive nature of technology has compelled a shift in teaching methodologies, raising concerns about how polytechnic lecturers implement practical-oriented instruction in Nigerian polytechnics. Specifically, the authors made a case that conversations surrounding technological disruptions over the past four years have exposed shortcomings in polytechnic education in Nigeria, necessitating a redress to focus on skills acquisition and technology-enhanced methodologies. Consequently, the authors opined that to advance the acquisition of transformative and innovative skills necessary for societal transformation, polytechnic lecturers need to reassess their instructional strategies and knowledge of teaching with technology to align with the objectives of establishing polytechnic education in Nigeria. In the concluding remarks, the authors identified and clarified how creativity can support experiential, hands-on, technology-enhanced instruction in Nigerian polytechnic education.

Keywords: Creativity, Deficiencies, Lecturers, Practical, Polytechnic, Technology

Introduction

There are three components to the Nigerian higher education system: the university, the polytechnic, and the college of education (Jacob & Josiah, 2021; Owolabi et al., 2022; Ukpai, 2015). Technical education was once a part of Nigeria's system, but it seems it is no longer available or active, even though it came long before the introduction of polytechnic education. Many academics have contended that polytechnics play comparable but advanced roles in terms of hands-on activities, which add to the pervasive inactivity of technical education, which was designed to offer experiential and practical learning opportunities (Gideon, 2017; Iruonagbe et al., 2015; Otache, 2022). While colleges of education concentrate on developing and applying pedagogy and subject matter knowledge (Babatunde et al., 2023; Olasehinde-Williams et al, 2018), universities give conceptual understanding of a phenomenon through research and community services (Jacob et al., 2020; Ogunode & Ade, 2023).

National Board for Technical Education (2023) online blog, Okolie et al (2020) and Ukpai, (2015) assert that among the three elements of the Nigerian educational system, the training

provided by polytechnic institutions provides students (either in two-year Ordinary National Diploma Classes or two-year Higher National Diploma classes) with the chance to comprehend and develop useful skills appropriate for the course of their study. Additionally, to the National Board for Technical Education (NBTE) website, polytechnic education in Nigeria is established to allow lecturers provide students with practical experience and industry-relevant skills so they could begin their chosen vocations immediately, promoting independent employment and long-term economic growth. Interestingly, due to the disruptive nature of technology in the society and all sectors in Nigeria, polytechnics are now recognising the importance of technology in professional programmes (Iyoha, 2018).

Subsequently, a plethora of individualized and generic software, digital technologies, and hardware has been introduced into Nigeria through western countries' corridors to facilitate both individual and group technological integration across a wide range of fields in higher education (Adedoyin 2023; Oladepo, 2015). These technologies include Interactive White Boards (IWBs), smart technologies (such as iPads and smart phones),



the Internet, digital portfolios, amplified speakers, projectors, and open educational resources (like Kahoot, Quizizz, and BlackBoard (BB)) are a few examples of these technologies. Another is ChatGPT, the newest AI (Artificial Intelligence) chatbox on the block, which can generate responses for computer science codes, academic writing, lesson notes, and cover letters. Despite limitations in terms of instructions and reasoning like humans, ChatGPT's value exceeds identified drawbacks in literature (Alshami et al., 2023).

Other technologies include Self-Made video Podcast (used by skit-makers in Nigeria), Screencast, Augmented Realities Software, Corel Draw, Analytical Tools like NVivo, Atlas.ti, MathLab, and more. As such, a growing number of pervasive technologies have entered higher education and society, compelling polytechnic lecturers to reconsider their methods of instruction to keep up with the national objectives of creating polytechnic education in Nigeria (Federal Ministry of Education, 2022).

Objectives of Polytechnic Education in Nigeria

The objectives of creating polytechnic education in Nigeria, as illustrated by the Federal Polytechnic, Ilaro online blog (2023) include the provision of physical and demonstrable skills aimed at providing technical and practical-oriented training to meet the workforce requirements for the industrial, agricultural, commercial, and economic developments of Nigeria. Agreeing with the Federal Polytechnic's assertion on the objectives of polytechnics in Nigeria, the Oyo State College of Agriculture and Technology online blog (2023) outlines the creative courses that the institution offers for self-sufficiency and productive practices. Agreeing with the training objectives put forward by the two polytechnics, Ukpai (2015, p.3) listed the objectives of polytechnic training in Nigeria as follows:

- i. To provide a trained workforce in applied sciences, technology, and commerce particularly at the sub-professional grade.
- ii. To provide technical knowledge and vocational skills necessary for agricultural, industrial, and economic developments.
- iii. To provide people who can apply scientific knowledge to the improvement and provision of

solutions to environmental problems for the use and convenience of man.

- iv. To give an introduction to professional studies in engineering and other technologies.
- v. To give training and impart the necessary skills leading to the production of craftsmen, technicians, and other enterprising and self-reliant citizenry and.
- vi. To enable young men and women have an intelligent understanding of the increasing complexity of technology.

These objectives align with the goals of the twenty-first century training in institutions as identified by Theodorio (2023) and the International Society for Technology in Education (ISTE), which necessitate the inclusion of technology or related ICTs (Information Communication Technologies) in higher education training institutions. According to ISTE (2000: 2019), twenty-first century training entails creating learning environments and experiences, implementing the most recent research on technology-enhanced training, and designing appropriate learning opportunities for students to advance knowledge of contents and skills with technology.

Weaknesses of Polytechnic Education in Nigeria

Resonating with the idea presented by Ukpai in 2015 on the objectives of polytechnic education in Nigeria, ISTE (2019) described the twenty-first century training as rethinking education and creating an innovative learning environment for students to learn in both theory and practice. To comprehend concepts in training, the body (ISTE) contended that teachers and lecturers must be able to display sound comprehension of technology usability in training.

This implies that a basic understanding of technological concepts and modes of technological operations is needed before a successful integration of technology into teaching processes. *Second*, we identified, from the arguments presented by ISTE (2019), that an understanding of teaching environments, knowledge of planning lessons, and knowledge of delivering and assessing the lessons with technology in the environment is imperative to training in the twenty-first century and beyond.



Third, we reason that technological advancements keep transforming polytechnic education in Nigeria and around the globe. It also suggests that lecturers need to be well-versed in the latest pedagogical approaches and techniques for utilizing contemporary technology in instruction in order to facilitate logical thinking and collaborative learning environments where students can recognize issues, generate concepts, evaluate proposed concepts, and demonstrate how well those concepts would function with technology in actual circumstances.

Regretfully, there seems to be a loss of focus on the objectives of instituting polytechnic training in the Nigerian educational system. Aacademics have pointed out numerous flaws in the system's abandonment or loss of educational goals in Nigerian polytechnics (Jacob & Josiah, 2021; Ukpai, 2015). Environmental variables (positioning of the institution, unfriendly society, poor Internet connection or bandwidth), institutional problems (lack of manpower, resources and training on the use of applicable technology aimed at achieving training goals), obsolete and non-practicable curricula, financial crisis, government's "*pledge attitude*" toward advancing infrastructure in higher institutions, braindrain, destruction of available facilities by volatile and militant students, and lecturers' lack of technological knowledge and abilities are a few of the contributing causes (Owolabi et al., 2022; Jacob & Josiah, 2021; Ukpai, 2015). To address these issues and refocus polytechnic education to produce high-level technical workforce for the nation's developmental plans, which are essential for the country's survival in a world driven by technology, all these challenges must be brought to limelight for solution-driven discussions and implementation.

After reviewing the issues raised by the literature, we identified that most polytechnics in Nigeria are losing sight of their goals because some lecturers lack the technical knowledge to effectively use accessible technologies for lesson planning, delivery, and evaluation (Ifinedo et al., 2020). Additionally, we discovered through literature that most polytechnic lecturers have not thought of creativity as a skill they could learn to improvise teaching aids (Agbidye et al., 2023). Whether they involve technology or not, we identified that some lecturers have not considered

developing creative skills to help their students develop appreciable skills that aid in gaining subject matter knowledge and expertise in the courses they teach. Furthermore, we identified from literature that there exists a cohort of lecturers who lack the requisite technical expertise to effectively leverage modern technologies introduced into higher education to support their pedagogical decisions (Ajayi & Luckay, 2023). While some lecturers diligently strive to creatively incorporate technology into their teaching methodologies, their shortcomings in technological pedagogies often surpass their competencies (Moemeke, 2019).

To exacerbate the issue, we discovered through literature that even though technologies useful for teaching and learning can be freely accessed, downloaded from the internet, or learned with assistance from colleagues, most lecturers are lagging their students in terms of technological proficiency. For instance, Yusuf et al. (2023) reported that most lecturers now rely on their students' technical support to provide quality training. It has been found that students now exploit instructional resources without giving credit to the authors, taking advantage of lecturers' lack of technological skills or knowledge (Eze et al., 2018). Because some polytechnic institutions in Nigeria do not have similarity identification software made available for lecturers to help with this (Akinawonu et al., 2022), most lecturers are unable to recognize the issues with the projects and assignments that students turn in. Taking these into consideration, lecturers need to reconsider and acquire new technology-enhanced teaching methodologies in the age of technological disruptions if polytechnic education in Nigeria is to meet previously outlined objectives.

What then can be done to achieve the objectives?

In this age of uncertainty, lecturers in polytechnic settings can achieve training goals by adopting the principles of creativity and technology integration in lesson designs and classroom delivery. According to Hrybiuk (2019) and Murodullayevna (2023), academic technological knowledge is developed and advanced via the application of creativity and technology. Likewise, Kramm and McKenna (2023) contended that the application of technology, such as artificial intelligence (AI) and other ICT tools facilitate creative development of learning activities that enable



students to acquire innovative experiences and knowledge in their areas of discipline. On its part, AI can help simplify training tasks, provide relevant information needed to solve training tasks and assists in providing complementary roles that aid effective instruction and knowledge development (Kramm & McKenna, 2023)

Kramm and McKenna (2023) went on to say that technology may be used to teach students and their professors how to think creatively about understanding their subject matter and even the wider world. We contend that lecturers and their students may comprehend their roles in the teaching and learning processes as they consistently apply the concepts of creativity and technology. Furthermore, we reason that the application of creativity may enable educators, especially lecturers, to make connections between their subject-matter expertise and innovative technologies and other learning spaces outside their classroom which will enable them and their students to make meaningful contributions to the society. If the goal of polytechnic education is to develop practical skills to advance both national and personal growth, then lecturers must adopt creativity to generate innovative ideas. The creatively - conceived idea might have the potential to alleviate the inconsistencies in Nigerian educational goals which are affecting polytechnic education (Chukwu, 2023; Olakitan, 2011; Lame, et al., 2013).

Furthermore, we propose that, in the increasingly complex and interrelated Nigerian polytechnic setting, creativity is a prerequisite for teaching effectiveness. In this regard, we reason that since disciplines coexist at polytechnics, it is critical that lecturers work together to exchange novel ideas, assess out concepts, and jointly create solution pathways and examples that facilitate the transfer of ideas between disciplines rather than merely providing lip service. For example, creating a self-produced video podcast to teach journalism lessons requires more than just lip service; the skills learnt in this process can also be applied to teaching multi-media in computer science courses. For example, if a lecturer wants to teach creativity in journalism and does not have access to appropriate teaching facilities, the lecturer may use a personal device to capture himself/herself as both a politician and a journalist. It makes perfect sense for the

lecturer to use a personal Internet-enabled phone to record themselves with the gadget serving as a journalist whose duty is to ask questions and thereafter, as a politician answering questions from the journalist. Using a video editor, the video clip can be cut down to a more manageable length and integrated into ready-made PowerPoint slides for future presentations and classroom demonstrations.

By doing this, the lecturer might equip the students with the skills necessary to solve problems, produce knowledge rather than just consume it, and see the possibilities of creativity and technology in polytechnic education that go beyond what has previously been covered in relation to these subjects in higher education. Furthermore, lecturers might be able to use creativity to integrate modern technology into their lessons in ways that are more effective than those that they may have previously deemed ineffective. It also suggested that polytechnic lecturers should consider the use of personal devices for leisure and, from there, consider the possibility of developing creative skills through the experience for teaching purposes, as this could help them assist students in acquiring and applying a range of reusable skills with specific technologies. More significantly, lecturers might be able to comprehend the rationale behind why specific lesson plans and digital tools might be suitable for certain assignments and circumstances, make wise decisions about how to use them, assess their effects, and remain receptive to novel ideas and opportunities that complement the goals of polytechnic education.

In another way, we reason that collegial demonstration in workshops, conferences and seminars might be helpful in reviewing and refocusing polytechnic education in Nigeria. Through collegial demonstrations, lecturers may socially interact to identify problems and share individual experiences on how training and technology challenges were mitigated using creativity. In conclusion, we argue that lecturers should practice collegiality to provide students with different skill levels and disciplines with better preparation for self-sustaining practices both now and in the future. This might allow lecturers and students to work together, exchange ideas, create logical plans, learn, and centralize knowledge of technology in theoretical and technical learning sessions.



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