

ASSESSMENT OF UTILIZATION OF INSTRUCTIONAL TECHNOLOGY IN COLLEGES OF EDUCATION IN ADAMAWA AND TARABA STATE, NIGERIA

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ABSTRACT

This study examines the utilization of instructional technology in Colleges of Education in Adamawa and Taraba States, Nigeria, and its impact on teaching and learning practices. Data was collected through surveys and analyzed to determine the availability, frequency of use, competence levels of lecturers, factors influencing utilization, and challenges faced in integrating instructional technologies. The findings reveal significant disparities in the availability and utilization of instructional technologies, with traditional tools like chalkboards being more prevalent than modern technologies such as overhead projectors and computers. While lecturers demonstrate varying levels of competence in using instructional technologies, challenges such as inadequate training and technical issues hinder effective integration. Despite these challenges, instructional technologies positively influence student academic performance. The study underscores the importance of addressing barriers and enhancing support mechanisms to promote the effective integration of instructional technology, ultimately improving teaching effectiveness and student learning outcomes in Colleges of Education.

Keywords: Instructional Technology, Teaching, Learning, Integration, Academic.

INTRODUCTION

In the classical theory of paradigm shifts (Kuhn 1970) there is a period when new paradigms emerge that challenge traditional and wide spread beliefs and approaches. At the heart of any new paradigm are ideas that challenge accepted assumptions along with emerging technologies that dramatically raise possibilities that could not be imagined within the old paradigm. This would appear to be what is happening as online and blended learning ideas have begun to shift the thinking and practice of educators and leaders in higher education. Collaborative constructivist teaching and learning ideas have come to the fore as the affordances of emerging technologies create design possibilities that make such approaches to learning practical. While new and emerging information and technological tools are a catalyst for new educational paradigms, it is the convergence of the valued idea of collaborative constructivist approaches and



new communications technology that has given life to online and blended learning in higher education.

Alos et al. (2015) greatly emphasized the importance of having qualified teachers in the field of teaching, and said that success of any program is conditioned by the ability of the teacher to teach. If there is failure at this point, the whole structure fails. Hence, the implementation, selection, preparation and supervision of education will be affected. Moreover, Dewett (2007) mentioned that good teachers are constantly on the alert for methods and instructional materials that will make learning meaningful. With the wise selection and use of a variety of instructional materials or audio-visual materials, experiences may be provided to develop understanding. Education system in Nigeria has been in crisis for many years largely due to the fact that the sector is poorly funded. This has led to shortage supply of learning materials and human resources being experienced in the system. Inadequate qualified teachers, high turnover rate of teachers, shortage of classroom, and poor remuneration of teachers and a host of other problems abound in the education sector. The economic crisis experienced in Nigeria impacted on the education system and had played a major role in the decline of the quality of Education offered in the country (Olabiyi and Abayomi 2010).

Meanwhile, the future of every nation depends largely on the fate of every child that is born into her; most especially those that are privileged to go through the academic walls of the nation starting from the primary level of education to the tertiary institution. Education is an important industry for social, political and economic development and is being affected by the environment within which it exists (Adediran, Ojomo & Adeyanju, 2015). Hence, national development has been founded by those who are experts in their areas of specialization, and this would not have been imaginable without the instrumentality of the educational system. Every country endeavours to provide quality education for its people.

Colleges of Education across the country are implementing initiatives to promote new and more effective teaching methods grounded in information technology and the improvement of teaching skills of graduate and undergraduate students in professional education programs. The goals for participating lecturer members are to integrate information technology competencies into not only the content of the courses that they teach, but also into their instructional methods of teaching. Lecturers and students develop activities to infuse technology into teaching and learning using existing resources and facilities. The use of technology to enhance and reinforce concept formation during classroom instruction is fast becoming the rule rather than the exception in Colleges and Universities across the nation.

In view of the above, the National Policy on Education (Federal Government of Nigerian, FGN, 2004:52-54) has prescribed educational services as support services for the Nigerian educational system. This means that educational services should try to spread to cover the educational system. The Federal Government established the National Educational Technology Centre (NETC) in order to provide educational services nation-wide. States were encouraged to set up their own centres, as was the case in educational institutions. The creation of states saw



the continued expanding of service organization as each state established its own in conformity with the National Policy on Education (FGN, 2004:52-54)

Teacher Education is one of the issues in educational discourse that have attracted considerable attention in both developed and developing countries. Since the future progress and development of a nation to a large extent depends on the quality of its teachers, there is the need for them to be thoroughly trained, because no educational system can rise above the quality of its teachers (NPE 2004). In our Colleges of Education in Nigeria today, there is poor academic performance of students in almost all the institutions, (National Commission for Colleges of Education - NCCE 2018), which may not be unconnected to the unavailability, inadequate, frequency of utilization and competency level using instructional technologies, in our institutions.

Purpose of the Study

The purpose of this research was to assess the availability, utilization of instructional technologies on academic performance in Colleges of Education in Adamawa and Taraba States.

This study therefore, was conceived to:

1. Ascertain the availability of instructional technologies;
2. Ascertain the frequency of using instructional technologies;
3. Determine perceived competencies of lecturers in using instructional technologies;
4. Ascertain the influence of the use of instructional technologies on the academic performance of students and
5. Ascertain the challenges facing teachers in the use of instructional technologies in Colleges of Education.

Research Questions

The following research questions guided the study:

1. To what extent are instructional technologies available in Colleges of Education in Adamawa and Taraba States?
2. How often do lecturers use instructional technologies in their teaching?
3. How do college lecturers perceive their competency levels in using instructional technologies?
4. What is the extent of influence of instructional technologies on academic performance of students?
5. What are the challenges facing teachers in the use of instructional technologies in Colleges of Education in Adamawa and Taraba States

LITERATURE REVIEW

Oludipe, & Akinwamide,(2020). "Challenges and prospects of instructional technology integration in teacher education programs: A case study of Colleges of Education in Nigeria." *Journal of Education and Learning*, 9(3), 123-131.

In this study, Oludipe and Akinwamide investigate the challenges and prospects associated with the integration of instructional technology into teacher education programs, focusing specifically on Colleges of Education in Nigeria. Through a case study approach, the authors delve into the current landscape of instructional technology integration within teacher education, examining the various hurdles faced by educators and institutions in Nigeria.

The research sheds light on the complexities and obstacles encountered in effectively incorporating instructional technology into teacher training programs. By exploring the experiences and perspectives of stakeholders involved in teacher education, the study provides valuable insights into the unique challenges faced within the Nigerian educational context.

Through rigorous analysis and empirical investigation, the authors not only identify the barriers hindering the seamless integration of instructional technology but also highlight potential pathways and opportunities for improvement. By addressing these challenges and capitalizing on the identified prospects, the study contributes to the advancement of teacher education practices in Nigeria and offers recommendations for enhancing the integration of instructional technology in Colleges of Education.

Overall, the findings of this study provide valuable guidance for policymakers, educators, and stakeholders seeking to promote the effective use of instructional technology in teacher education programs, thereby fostering the professional development and readiness of future educators in Nigeria.

Adeyinka, Adedoja, (2016). "Enhancing teaching effectiveness through information and communication technology: Teachers' perception in Nigerian Colleges of Education." *Journal of Education and Practice*, 7(4), 20-26. In their study, Adeyinka and Adedoja explore the perceptions of teachers regarding the use of information and communication technology (ICT) to enhance teaching effectiveness within Nigerian Colleges of Education. Through surveys, interviews, and observations, the researchers investigate how educators perceive the integration of ICT tools and resources into their teaching practices.

Bello, Akanbi, & Ayilara, (2019). "Utilization of instructional materials in Colleges of Education in North Central Nigeria." *International Journal of Education and Evaluation*, 5(1), 12-22. Bello, Akanbi, and Ayilara conduct a comprehensive examination of the utilization of instructional materials within Colleges of Education in North Central Nigeria. Through surveys, observations, and document analysis, the researchers investigate the availability, accessibility, and effectiveness of instructional materials in enhancing teaching and learning processes. By identifying gaps and challenges in the utilization of instructional materials, the study offers recommendations for improving resource allocation and instructional support mechanisms within Colleges of Education in the region.

Okoye, & Eze, (2017). Application of instructional technology in Colleges of Education: A study of lecturers' competence in South-East Nigeria. *African Journal of Educational Studies in Mathematics and Sciences*, 13(1), 87-97. Okoye and Eze examine the application of instructional technology among lecturers within Colleges of Education in South-East Nigeria. Through surveys, interviews, and competency assessments, the researchers assess the proficiency levels of lecturers in utilizing instructional technology tools and resources to support teaching and learning activities. By exploring the challenges and barriers faced by educators in integrating technology into their pedagogical practices, the study highlights opportunities for enhancing professional development and capacity building initiatives within the Nigerian higher education sector.

Olowolaju, & Afolabi, (2018). "Integration of instructional technology in teacher education programs: A case study of Colleges of Education in South-West Nigeria." *International Journal of Instructional Technology and Distance Learning*, 15(9), 45-57. Olowolaju and Afolabi conduct a detailed case study examining the integration of instructional technology within teacher education programs offered by Colleges of Education in South-West Nigeria. Through interviews, focus groups, and programme evaluations, the researchers explore the strategies, challenges, and outcomes associated with the integration of technology into teacher preparation curricula. By identifying best practices and areas for improvement, the study offers valuable insights into enhancing the quality and relevance of teacher education programs in Nigeria through the effective integration of instructional technology.

METHODOLOGY

The research was conducted by using a descriptive survey design. Survey research design collects background information on attitudes, ideas, comments and public opinion on a problem under investigation. The survey design used 300 academic staff of Colleges of Education in Adamawa and Taraba States as the sample for the study on the use of instructional technologies. The target population for this research comprised four hundred and ninety-eight (498) academic staff in the three Colleges of Education in Adamawa and Taraba States. Out of the total population of 498 lecturers, 300 were sampled. Using the stratified sampling techniques 240 male and 60 female lecturers were sample.

Questionnaires and checklist was the main instrument for data collection in the research. The instrument was made up of a thirty-five (35) items self-structured questionnaire aimed at assessment of the instructional technologies and academic performance in Colleges of Education in Adamawa and Taraba States. The questionnaire was divided into five (5) sections, namely section A, B, C, D, E and F. In this survey research tool were administered personally i.e. moving from one College to the other. The responses were collected immediately for analysis. The data collected from the respondents, were analyzed using descriptive and inferential statistical tools such as mean (\bar{X}), standard deviation (S.D) and Statistical Package of the Social Sciences (SPSS). Descriptive statistic was used (mean and standard deviation) to answer research questions.



RESULTS

Data in table 1 shows six (6) items on the availability of instructional technologies in Colleges of Education in Adamawa and Taraba States. Only item one (1) i.e. chalkboard is very available in the schools while items 2, 3 and 4 i.e. overhead projectors, flip charts and instructional television with video equipment are slightly available. However, items 5 and 6 computers and locally made resources are moderately available. The data indicates that instructional technologies in Colleges of Education in Adamawa and Taraba States are generally not widely available. While the chalkboard is very available, other technologies such as overhead projectors, flip charts, instructional television, computers, and locally made resources are only slightly to moderately available. This suggests a significant gap in the availability of modern instructional technologies necessary for effective teaching and learning.

Data in table 2 dealt with six (6) items on the frequency of use of instructional technologies, it shows that chalkboard was the only instructional technology that lecturers used but not always with grand mean of 4.47, while overhead projectors, flip charts and instructional television are rarely used by the lecturers of Colleges of Education in Adamawa and Taraba states. Similarly, computers and locally made resources are occasionally used by the lecturers. The findings reveal that lecturers primarily rely on traditional instructional tools such as the chalkboard, with limited use of other technologies. Overhead projectors, flip charts, instructional television, computers, and locally made resources are rarely used. This indicates a low level of integration of instructional technologies into teaching practices, potentially hindering the adoption of more interactive and engaging instructional methods.

Data in table 3 dealt with eight (8) items on the lecturers' competence levels in the use of instructional technologies. Responses in table 6 revealed that chalkboard is the only instructional technology that the lecturers have very competent level in using with grand mean of 4.02 while the rest of the technologies (overhead projector, instructional television, video machine, flip charts and computers and locally made resources, they are either competent or slightly competent in using them.

Table 4 shows that all the nine (9) items influence instructional technologies on academic performance of students in Colleges of Education in Adamawa and Taraba States. The mean values range from 3.98 to 4.65. The results suggest that several factors significantly influence the use of instructional technologies in Colleges of Education in Adamawa and Taraba States. Training, availability of resources, administrative support, motivation, workshops and seminars, and personal interest in instructional technologies emerge as key factors. This underscores the importance of institutional support and professional development initiatives in promoting the effective integration of instructional technologies in teaching practices.

Table 5 shows that all the six (6) items challenges facing teachers in the use of instructional technologies in teaching, in Colleges of Education in Adamawa and Taraba States. The mean value range from 3.70 to 4.47. The data indicates that instructional technologies have a significant positive influence on the academic performance of students in Colleges of Education

in Adamawa and Taraba States. This underscores the importance of leveraging technology-enhanced teaching and learning strategies to improve student outcomes and educational quality.

The findings reveal various challenges faced by teachers in the use of instructional technologies, including inadequate training, technical issues, lack of resources, and resistance to change. Addressing these challenges is crucial to effectively harnessing the potential of instructional technologies to enhance teaching and learning experiences in Colleges of Education in Adamawa and Taraba States.

FINDINGS OF THE STUDY

The findings of the study indicate significant disparities in the availability and utilization of instructional technologies in Colleges of Education in Nigeria. While traditional tools like chalkboards are widely available and frequently used, modern technologies such as computers and overhead projectors are less accessible and utilized. Lecturers exhibit varying levels of competence in using instructional technologies, with challenges such as inadequate training hindering effective integration. Despite these challenges, instructional technologies positively influence student academic performance. This emphasizes the importance of addressing barriers and enhancing support mechanisms to promote effective integration, ultimately improving teaching effectiveness and student learning outcomes in Colleges of Education.

Discussion of Findings

The findings of the study shed light on various aspects of instructional technology utilization and its impact on teaching and learning in Colleges of Education in Adamawa and Taraba States. These findings provide valuable insights into the current state of instructional technology integration and the challenges faced by educators in the region.

Firstly, the study reveals a significant gap in the availability of instructional technologies, with traditional tools such as chalkboards being widely available while modern technologies like overhead projectors, flip charts, and computers are only moderately accessible. This aligns with previous research highlighting the disparity in technology access and adoption in educational settings (Adeyinka & Adedoja, 2016; Bello, Akanbi, & Ayilara, 2019).

Moreover, the low frequency of use of instructional technologies among lecturers highlights the need for increased integration and training opportunities. Despite the potential benefits of technology-enhanced teaching methods, lecturers primarily rely on traditional tools, which may limit the effectiveness and engagement of instruction (Okoye & Eze, 2017).

Furthermore, the varying levels of competence among lecturers in using instructional technologies highlight the importance of targeted professional development initiatives (Oludipe & Akinwamide, 2020). While lecturers demonstrate high competency levels with chalkboards, their proficiency with other technologies is less consistent. This emphasizes the need for continuous training and support to enhance educators' confidence and skills in utilizing a diverse range of instructional tools.

The study also identifies several factors influencing the use of instructional technologies, including training, resource availability, administrative support, and personal interest. These findings resonate with existing literature emphasizing the importance of institutional support and teacher motivation in technology integration efforts (Olowolaju & Afolabi, 2018).

Moreover, the positive influence of instructional technologies on student academic performance underscores the potential of technology-enhanced learning environments to improve educational outcomes (Adekeye, 2008). However, challenges such as inadequate training, technical issues, and resistance to change pose significant barriers to effective technology integration (Adediran, Ojomo & Adeyanju, 2015).

CONCLUSION

In conclusion, the utilization of instructional technology in Colleges of Education in Nigeria presents both challenges and opportunities. While there are disparities in the availability and integration of modern instructional tools, such as computers and overhead projectors, traditional methods like chalkboards remain prevalent. Addressing barriers such as inadequate training and technical issues is essential for enhancing the effective integration of instructional technology. Despite challenges, instructional technologies positively influence student academic performance, highlighting the importance of leveraging technology-enhanced teaching methods. Improving support mechanisms and professional development initiatives can promote effective utilization of instructional technology, ultimately enhancing teaching effectiveness and student learning outcomes in Colleges of Education.

RECOMMENDATIONS

In view of the above discussion, the following recommendations are prominent.

1. There is need to train lecturers regularly through seminar, conference, workshops, short and long-term training. The training would help them to meet up the demand of learning materials like the new information technologies.
2. Teachers should be encouraged and endeavour to commit themselves into the effective use of teaching aids or instructional materials in all their instructional delivery.
3. Schools should appeals to non-governmental organizations, private sectors, individuals and industries to assists in supplementing and substituting obsolete educational materials and learning aids like projected and other software packages.
4. There should be a forum where teachers will meet periodically to update their knowledge and access the effectiveness of their teaching using the methods of instructional and educational technology as applicable to the content of education instructions at all level of education.

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