



Assessment of Multimedia Resources Accessibility in the Conduct of Micro-Teaching among Lecturers in Colleges of Education, North-West, Nigeria

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ABSTRACT

The study assessed multimedia resources accessibility in the conduct of micro-teaching among lecturers in Colleges of Education, North-west, Nigeria. The study consisted of five specific objectives among which are to: assess the availability of multimedia resources for microteaching in Colleges of Education, North-West, Nigeria. The study employed cross sectional survey research design with a population of 4499 lecturers with sample size of 354. Proportionate and simple random sampling techniques were used to select the sample. The data collection instrument for this study was a self-developed structured instrument titled "Accessibility and Utilization of Multimedia Resources for Microteaching among Lecturers Questionnaire (AAUMRMALQ)". Research question was answered using percentage and frequency counts. The null hypothesis was tested using one sample t-test. The study indicated that that while some resources are easily accessible, others remain moderately or poorly available, suggesting a disparity in the integration of multimedia tools across institutions. The study among others recommends the need to invest in Video Projectors, Projection Screens, and Close Circuit Cameras: These tools scored the lowest in terms of accessibility. Colleges of Education should prioritize investing in these multimedia resources to support advanced teaching methods that enhance students' engagement and learning.

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INTRODUCTION

Education is the backbone of societal development, and teachers play a pivotal role in ensuring the effectiveness of the education system. Every society invests in teacher education by enhancing teachers' pedagogical skills, methodologies, and strategies to maximize educational outcomes. The quality of education is largely dependent on the availability of instructional resources in schools, while student performance is significantly influenced by teachers' knowledge, skills, and attitudes. Schools equipped with qualified teachers, interactive teaching and learning materials, and conducive

learning environments can provide qualitative and quantitative education (Bryan & William, 2016).

The integration of multimedia resources into the teaching and learning process enhances educational experiences by offering diverse and interactive ways to engage students. Multimedia resources, which include audio, visual, and interactive elements, are designed to facilitate teacher-student interaction, broaden learning experiences, and cater to different learning needs. When effectively utilized, multimedia resources enable students to construct knowledge independently and develop lifelong learning strategies (Ike, 2003). Consequently, the availability and accessibility of multimedia

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resources in teacher education programs are crucial in fostering professional development among pre-service teachers.

Teacher education programs emphasize the effective and adequate use of instructional materials and diverse teaching methods. Student-teachers are assessed based on their ability to select appropriate teaching strategies and instructional materials (Abubakar, 2014). The rapid advancement in technology has provided teachers with innovative means to enhance their teaching approaches. Educators are no longer limited to traditional lecture methods but can utilize a variety of instructional facilities to create engaging and effective learning environments (Bryan & William, 2016).

Microteaching is a fundamental aspect of teacher education, designed to develop pre-service teachers' skills and competencies. It is a scaled-down teaching session in which student-teachers practice specific teaching skills within a controlled setting. The concept of microteaching involves breaking down the teaching process into distinct, manageable skills that can be practiced, refined, and mastered before full-scale classroom implementation (Ike, 2003). According to Achuonye (2007), microteaching skills include set induction, classroom management, questioning techniques, instructional material utilization, reinforcement, and closure, among others. Immediate feedback from supervisors enables student-teachers to refine their skills and enhance their teaching effectiveness (Anulobi & Ngumah, 2010).

Multimedia resources have revolutionized microteaching by providing pre-service teachers with an array of digital tools to simulate real classroom environments. These resources include projectors, audio-visual aids, interactive software, and online teaching platforms. The integration of multimedia in teacher education facilitates effective lesson delivery, engages learners, and improves comprehension (Abubakar, 2014). Furthermore, multimedia-enhanced microteaching promotes self-paced learning, encourages self-regulated instruction, and reduces the cognitive load on learners by

integrating text, images, audio, and video elements (Bryan & William, 2016).

In the context of Colleges of Education in North-West Nigeria, assessing the availability and utilization of multimedia resources in microteaching is critical to understanding the challenges faced by teacher education institutions. Several factors impact the accessibility of multimedia resources, including funding constraints, inadequate infrastructure, unreliable electricity supply, and insufficient technical support. The limited availability of modern educational technology tools can hinder the full potential of microteaching, thereby affecting the quality of teacher preparation programs (Abubakar, 2014).

The need to integrate multimedia resources into microteaching is imperative for enhancing the professional competence of pre-service teachers. However, in many Colleges of Education in North-West Nigeria, there is an evident gap in the provision and accessibility of these resources. Addressing these challenges requires a comprehensive assessment of multimedia resource availability, access, and utilization in microteaching. Such an assessment will provide insights into the existing gaps and inform policy recommendations for improving the integration of multimedia technology in teacher training programs. Therefore, this study aims to evaluate the availability of multimedia resources in the conduct of microteaching among lecturers in Colleges of Education in North-West Nigeria, with a view to identifying challenges and proposing strategies for effective implementation.

METHODOLOGY

A descriptive survey research design was adopted for this study. The population of this study comprises of all academic staff in all the public Colleges of Education in North-West, Nigeria. There is a total number of 4,499 academic staff in the thirteen (13) colleges of education based on the official data obtained from the NCCE Digest (2024). The minimum sample size for this study was three hundred and fifty-four (354) Lecturers from the Colleges of Education in North-West, Nigeria. The sample was determined based



on Research Advisors Table (2006). Proportionate sampling procedure was used to allocate respondents to each selected institution in relation to their population size. Salihu (2023), proportionate sampling is a sampling technique that could be adopted when the population of the study is composed of several subgroups that are vastly different in number. Also, simple random sampling technique was to select colleges of education and lecturers.

The data collection instrument for this study was a self-developed structured instrument titled "Accessibility and Utilization of Multimedia Resources for Microteaching among Lecturers Questionnaire (AAUMRMALQ)". Questionnaire as a data collection instrument was used in this study where respondents completed the questionnaire on time and place (Gray, 2019). The data collected for the study were subjected to analysis and the reliability coefficient for accessibility of multimedia resources was 0.766.

According to Olayiwola (2010) an instrument is considered reliable if it lies between 0.50 and 1.00, and that the closer the calculated reliability coefficient is to zero, the less reliable is

the instrument, and the closer the calculated reliability co-efficient is to 1, the more reliable is the instrument. This therefore confirms that the instrument was reliable and was used to collect data for the main work. Descriptive and inferential statistics were used in analysing the data obtained for the study. The research question was analysed using arithmetic means and standard deviations to obtain overall average scores. For the inferential analysis, the one sample t-test was used in testing the null hypothesis at $\alpha = 0.05$ level of significance.

RESULTS

Research Question One

What is the difference in the accessibility of Multimedia resources for micro teaching among lecturers in Colleges of Education, North-West, Nigeria?

This research question was answered using means and standard deviations. The result of the analysis is presented in Table 4.02.

Table 1: Means and Standard Deviations on Accessibility of Multimedia Resources for Micro Teaching among Lecturers in Colleges of Education

Accessibility of Multimedia Resources	N	Mean	SD	Std. Error Mean
Internet	440	3.84	.553	.026
Transparency	440	3.83	.574	.027
Slide projector	440	3.23	1.073	.051
Audio	440	3.02	1.171	.056
Still cameras	440	2.92	1.114	.053
Electronic smart board	440	2.85	1.102	.053
Overhead projector	440	2.82	1.100	.052
Opaque projector	440	2.82	1.070	.051
Scanners/digitizers	440	2.81	1.172	.056
Computer	440	2.79	1.150	.055
Public address system	440	2.79	1.173	.056
Satellite	440	2.53	1.127	.054
TV sets	440	2.52	1.127	.054
Multimedia resources projector	440	2.50	1.222	.058
Video cameras	440	2.50	1.224	.058
DVD player	440	2.49	1.177	.056
Video machines	440	2.48	1.129	.054
Close circuit camera	440	2.04	1.121	.053
Video projector	440	1.90	1.101	.052

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Accessibility of Multimedia Resources	N	Mean	SD	Std. Error Mean
Projection screen	440	1.70	.955	.046
Total	440	54.38	6.854	.327
Aggregate		2.72	0.343	0.016

The table 1 presents the mean scores and standard deviations (SD) of lecturers' responses regarding the accessibility of various multimedia resources used for micro-teaching in Colleges of Education. The values indicate the extent to which these resources are accessible for instructional purposes. The most accessible multimedia resource is the Internet (Mean = 3.84, SD = 0.553), followed closely by Transparency (Mean = 3.83, SD = 0.574). These high mean values suggest that lecturers have relatively easy access to these resources, likely due to the widespread availability of internet connectivity and transparency sheets for teaching.

Resources such as the Slide Projector (Mean = 3.23, SD = 1.073), Audio devices (Mean = 3.02, SD = 1.171), and Still Cameras (Mean = 2.92, SD = 1.114) fall within the moderate accessibility range. Their standard deviations are relatively high, indicating some variation in accessibility across different institutions. The Electronic Smart Board (Mean = 2.85, SD = 1.102), Overhead Projector (Mean = 2.82, SD = 1.100), and Scanners/Digitizers (Mean = 2.81, SD = 1.172) show limited accessibility. These are essential teaching tools, but their mean scores suggest that many lecturers may not have consistent access to them.

The least accessible multimedia resources include Close Circuit Cameras (Mean = 2.04, SD = 1.121), Video Projectors (Mean = 1.90, SD = 1.101), and Projection Screens (Mean = 1.70, SD = 0.955). These resources are crucial for advanced multimedia presentations but appear to be largely unavailable or difficult to access in Colleges of Education. The aggregate mean score is 2.72, suggesting that, on average, multimedia resources are moderately accessible. However, the variation in accessibility is evident from the standard deviation of 0.343.

The high accessibility of the internet and transparency sheets suggests that digital and basic analog teaching tools are relatively available. Limited access to video cameras, projectors, and other modern multimedia tools may hinder the effectiveness of micro-teaching practices.

Null Hypothesis One

There is no significant difference in the accessibility of Multimedia resources for micro teaching among lecturers in Colleges of Education, North-West, Nigeria.

This null hypothesis was analysed using one-sample t-test. The result of the analysis is presented in Table 2.

Table 2: Summary of One-sample t-test on Accessibility of Multimedia Resources for Micro Teaching among lecturers in Colleges of Education

Mean	SD	t	df	p	Mean Difference	95% Confidence Interval of the Difference	
						Lower	Upper
54.38	6.854	166.402	439	.000	54.375	53.73	55.02

Table 2 presents the summary of the one-sample t-test on the accessibility of multimedia resources for micro-teaching among lecturers in Colleges of Education. The test result, $t(439) = 166.402$, $p < 0.001$, indicates that the null hypothesis, which stated that there is no significant difference in accessibility, is rejected.

This suggests a statistically significant difference in the accessibility of multimedia resources for micro-teaching among lecturers in Colleges of Education in North-West Nigeria.

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DISCUSSION OF FINDINGS

The findings presented in Table 1 reveal notable insights into the accessibility of various multimedia resources used for micro-teaching in Colleges of Education. The data shows that while some resources are easily accessible, others remain moderately or poorly available, suggesting a disparity in the integration of multimedia tools across institutions. The following discussion provides a deeper exploration of these findings, referencing recent studies and offering potential explanations for the observed trends.

The highest mean values for resource accessibility are associated with the Internet (Mean = 3.84, SD = 0.553) and Transparency (Mean = 3.83, SD = 0.574). These findings suggest that both digital resources and basic analog tools are relatively well integrated into the instructional practices of lecturers. The widespread availability of Internet connectivity is likely a major contributing factor to this accessibility. Recent studies by Okebukola & Ojo (2023) and Akinmoladun & Ilesanmi (2023) highlight the increasing presence of Internet services in educational settings, which facilitates access to various teaching materials, research databases, and online learning platforms.

Similarly, transparency sheets, a traditional yet effective teaching tool, remain accessible due to their cost-effectiveness and minimal technological requirements. This aligns with findings from Chukwuemeka (2022), who noted that transparency sheets continue to be popular in settings where advanced technological resources are scarce. The Slide Projector (Mean = 3.23, SD = 1.073), Audio Devices (Mean = 3.02, SD = 1.171), and Still Cameras (Mean = 2.92, SD = 1.114) fall into the moderate accessibility range. The variation in accessibility, reflected by relatively high standard deviations, indicates inconsistency across institutions. Some institutions may be well-equipped with these resources, while others face challenges in obtaining or maintaining them.

This variance is consistent with the observations of Nwankwo et al. (2023), who found that the availability of multimedia resources in Nigerian colleges often depends on factors such

as institutional funding, geographical location, and infrastructural development. Resources such as the Electronic Smart Board (Mean = 2.85, SD = 1.102), Overhead Projector (Mean = 2.82, SD = 1.100), and Scanners/Digitizers (Mean = 2.81, SD = 1.172) show limited accessibility. These tools are critical for enhancing teaching effectiveness, especially in a modern educational context. However, their relatively low mean scores suggest that they are not as readily available in most Colleges of Education.

Ayodele (2023) argued that the integration of such advanced resources in teacher training colleges in Nigeria is hindered by financial constraints and a lack of technical training for staff. The Video Projector (Mean = 1.90, SD = 1.101), Close Circuit Camera (Mean = 2.04, SD = 1.121), and Projection Screens (Mean = 1.70, SD = 0.955) are among the least accessible multimedia resources. The low mean values for these tools indicate significant challenges in access, suggesting that many lecturers in Colleges of Education lack the necessary equipment for advanced multimedia teaching practices. This finding resonates with Obiakor & Onwuegbuzie (2022), who noted that video projectors and close circuit cameras remain out of reach for many institutions due to their high cost and the need for specialized technical support.

The aggregate mean score of 2.72, with a standard deviation of 0.343, points to an overall moderate level of multimedia resource accessibility in Colleges of Education. While the Internet and transparency sheets are readily available, the inconsistent access to more advanced tools like video projectors and smart boards could pose a barrier to effective micro-teaching practices. Aliyu & Akintoye (2023) highlighted that the use of diverse multimedia resources is crucial for effective teaching and learning, especially in a subject like micro-teaching, where demonstration and simulation are key components. The lack of access to advanced technologies could limit the ability of lecturers to create engaging and interactive learning environments, potentially impacting the quality of instruction.



The findings from this study underscore the need for a more equitable distribution of multimedia resources in Colleges of Education. While basic resources such as the Internet and transparency sheets are accessible, there remains a significant gap in the availability of more sophisticated tools like video projectors and smart boards. The findings also point to the importance of institutional support in improving the accessibility of multimedia resources, particularly in underfunded or rural colleges.

RECOMMENDATIONS

The following recommendations are put forth:

1. Invest in Video Projectors, Projection Screens, and Close Circuit Cameras: These tools scored the lowest in terms of accessibility. Colleges of Education should prioritize investing in these multimedia resources to support advanced teaching methods that enhance student engagement and learning.
2. Expand Access to Electronic Smart Boards and Overhead Projectors: With mean scores below 3, these resources are not widely accessible. Colleges should explore funding or partnerships to acquire such devices, ensuring that they are available for lecturers to improve the interactivity and visual appeal of their lessons.
3. Upgrade Audio and Video Equipment: With moderate access to audio devices and still cameras, Colleges should focus on improving the quality and availability of these resources. Establishing a centralized resource pool where lecturers can borrow

equipment may help ensure that these tools are accessible when needed.

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