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INFLUENCE OF MOBILE LEARNING APPS ON STUDENT ENGAGEMENT AND COMMUNICATION IN TERTIARY INSTITUTIONS IN ANAMBRA STATE

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ABSTRACT

The study is on the influence of mobile of learning apps on student engagement and communication in tertiary institutions in Anambra state. It adopted the descriptive survey design. The study was guided by three basic objectives. Consequently, three research questions and one hypothesis were formulated. Students and lecturers from Nnamdi Azikiwe University and Odumegwu Ojukwu University in Anambra state formed the population. A sample of 300 respondents (150 respondents from each of the two universities) was drawn using the convenience sampling technique. Data were elicited by means of a researcher-designed questionnaire tagged Mobile Learning App and Student Engagement and Communication Questionnaire (MOLASECQ). The instrument was validated by three lecturers from Anambra State University and was pilot-tested with a sample of 20 respondents which yielded a Cronbach-alpha reliability of 0.82. The data collection process was by direct delivery method and lasted for 10 days. Data analysis was conducted by the application of mean and standard deviation (SD) for the research questions and Chi-Square for the hypothesis. Results indicated that mobile learning apps helped to improve student engagement through increased interest and group work. Similarly, the study found that communication was improved as students received immediate feedback from lecturers regarding their work due to the application of mobile learning apps. It was recommended among other things that the authorities of tertiary institutions should harness their resources to provide befitting mobile learning apps for use, and that some challenges observed, such as technical hitches, should be addressed to maximise the benefits of mobile learning apps.

Introduction

In recent years, the landscape of education has undergone significant transformations, particularly with the advent of technology. In Nigeria, tertiary institutions are increasingly recognising the importance of student engagement and communication as critical components of effective learning. However, poor student engagement and communication remain pervasive issues that can have detrimental effects on academic performance and overall student satisfaction. Poor student engagement often leads to a lack of motivation and interest in academic activities. When students are not actively involved in their learning processes, they are less likely to participate in discussions, collaborate with peers, or seek help from instructors. This disengagement can result in lower academic performance, increased dropout rates, and a general sense of isolation among students (Hwang & Tsai, 2021). Furthermore, ineffective communication can exacerbate misunderstandings between students and educators, leading to frustration and a negative learning environment. The consequences of these issues are particularly concerning in the context of Nigeria's educational system. Disengaged students may struggle to develop critical thinking and problem-solving skills, which are essential for success in the 21st century. Additionally, poor communication can hinder the development of interpersonal skills, making it difficult for students to navigate professional environments after graduation (Gillies, 2022).

Various initiatives have been implemented to enhance student engagement and communication in Nigerian tertiary institutions. Traditional methods, such as face-to-face interactions and group discussions, have been employed, but these approaches have not consistently yielded the desired results. Many students still report feeling disconnected from their peers and instructors, indicating that more innovative solutions are needed. Moreover, the COVID-19 pandemic has further highlighted the limitations of conventional teaching methods, as institutions were forced to pivot to online learning. While this shift provided some opportunities for engagement through digital platforms, many students faced challenges related to access and familiarity with technology, which hindered effective communication and collaboration (Tyurikov, 2021).

In light of these challenges, mobile learning applications present a promising solution for enhancing student engagement and communication in Nigerian tertiary

institutions. The ubiquity of smartphones among students allows for greater accessibility to educational resources and communication tools. Mobile learning apps can facilitate interactive learning experiences, enabling students to engage with course materials and collaborate with peers in real-time, regardless of their physical location (Pechenkina, 2017). Furthermore, the interactive nature of mobile apps can foster better communication between students and educators, promoting a sense of community and support that is crucial for academic success. It is based on the foregoing that the researcher is motivated to take up the study to examine how the application of mobile apps will help to improve student engagement and communication in higher institutions in Anambra state.

Statement of the Problem

There has been an increasing recognition of the critical role that student engagement and communication play in academic success. However, despite the increasing awareness, many tertiary institutions in Nigeria, including Anambra state, continue to struggle with low levels of student engagement and communication. Poor engagement often manifests as a lack of participation in academic activities, which contributes to declining academic performance and increased dropout rates. Additionally, ineffective communication between students and educators exacerbates feelings of isolation and disconnection, creating a negative learning environment that hampers collaboration and support.

Current efforts to enhance student engagement, such as traditional face-to-face interactions and workshops, have not yielded the desired results. Many students still feel unmotivated and unsupported in their learning journeys, indicating a pressing need for more innovative and effective solutions. The transition to online learning during the COVID-19 pandemic highlights significant gaps in technology access and familiarity, further complicating the issue. In this context, the potential of mobile learning applications to foster greater student engagement and improve communication remains largely untapped. As these applications become increasingly prevalent in the digital age, there is a need to explore how they can be effectively integrated into the educational landscape of Nigeria to address the challenges of disengagement and communication breakdown. Consequently, the study aims to investigate the impact of mobile learning

apps on enhancing student engagement and communication in tertiary institutions in Anambra State, Nigeria.

Objectives of the Study

The study is designed to:

1. Assess the impact of mobile learning Apps on student engagement in tertiary institutions in Anambra state
2. Investigate the role of mobile learning apps in enhancing communication in tertiary institutions in Anambra state
3. Identify barriers to effective mobile App implementation in tertiary institutions.

Research Questions

1. What is the impact of mobile learning App on student engagement in tertiary institutions in Anambra state?
2. How do mobile learning Apps on student communication in tertiary institutions in Anambra state?
3. What factors militate against the effective implementation of mobile learning Apps in tertiary institutions in Anambra state?

Hypothesis

1. There is no significant influence of mobile learning Apps on student engagement and communication in tertiary institutions in Anambra state.

Literature Review

Conceptual Framework

Mobile Learning and Mobile Learning App

Many authors have posited different definitions of a mobile app. For example, Sharples et al. (2023) defined mobile learning as the processes of coming to know through conversations across multiple contexts among people and personal interactive technologies. This definition emphasises the social and contextual aspects of learning facilitated by mobile devices. Similarly, Baran (2024) describes mobile learning as a method that intersects mobile computing and e-learning, focusing on the use of mobile

technology to achieve anytime, anywhere, and ubiquitous learning. This definition underscores the flexibility and accessibility that mobile learning applications provide. Moreover, Chikere (2017) posited that mobile learning is a natural evolution of e-learning, emphasising the mobility of learners and the personalised nature of learning experiences that mobile applications can offer. This perspective highlights the adaptability of mobile learning to individual learning needs.

Sequel to the foregoing definitions, mobile learning can be defined as the process of learning that takes place using mobile devices such as smartphones, tablets or laptops. It allows learners to access educational content and resources anytime and anywhere, making it flexible and convenient. This approach to learning often includes apps, online courses and digital materials that support learning on the go. Mobile learning allows for interactivity among learners, promotes flexibility, convenience and allows for personalised learning experiences, accommodating various learning styles and preferences.

On the other hand, a mobile learning app is a software application that facilitates educational experiences and learning opportunities (Akpan-Atata&Enyene, 2020). These apps allow users to access courses, tutorials, quizzes and other educational resources anytime and anywhere in the world. They are digital platforms designed to facilitate education and training through mobile devices such as smartphones, tablets and laptops. These apps provide users with access to a wide range of educational resources, courses, and interactive learning experiences, enabling users to learn without any barriers. According to Kumar and Chand (2022), key features of mobile learning apps include accessibility, interactivity, personalised learning experiences, offline access, progress tracking and collaboration and social learning among others.

Student Engagement

Student engagement can be defined in various ways. Fredrick et al (2024) describe it as “the psychological investment that students make in their learning,” emphasising the emotional and cognitive aspects that influence students' involvement in educational activities. Similarly, Zira (2018) characterises student engagement as a construct that identifies what students do, think about, and feel when learning, as well as

how teachers can enhance these experiences in instructional settings. This definition highlights the dynamic relationship between students and educators in fostering an engaging learning environment.

From the premises above, student engagement encompasses three primary dimensions: behavioural, emotional, and cognitive. Behavioural engagement refers to students' participation in academic activities, such as attending classes, completing assignments, and interacting with peers and instructors. Emotional engagement involves students' feelings towards their learning experiences, including their sense of belonging and motivation, while cognitive engagement pertains to the mental effort students invest in understanding and mastering the material (Fredricks et al., 2024). Engagement is not merely about attendance or participation; it reflects a deeper connection to the learning process. Engaged students are more likely to take ownership of their learning, seek out additional resources, and develop critical thinking skills, making this active involvement crucial for fostering a positive learning environment and enhancing overall educational outcomes.

The importance of student engagement cannot be overstated. Engaged students tend to achieve higher academic performance, demonstrate improved retention rates, and exhibit positive attitudes towards their education. Engagement is linked to various positive learning outcomes, including enhanced academic achievement, improved retention rates, and the development of critical skills. Students who are engaged are more likely to excel academically because they invest time and effort into their studies (Gunuc&Kuzu, 2015). Additionally, higher levels of engagement correlate with lower dropout rates; students who feel connected to their learning environment are more likely to persist. Engagement also fosters the development of essential skills such as critical thinking, problem-solving, and collaboration, which are vital for success in both academic and professional settings (Tan & Hew, 2016). Conversely, the absence of student engagement can lead to several detrimental outcomes. Disengaged students often experience lower academic performance, as they are less likely to perform well academically, leading to poor grades and a lack of understanding of the material (Fredrickset al., 2024). Moreover, disengagement is a significant predictor of dropout rates; students who feel disconnected from their learning environment are more likely to

leave school prematurely. Furthermore, a lack of engagement can foster feelings of apathy and disinterest in learning, which can have long-term effects on students' educational and career aspirations (Zira, 2018).

Communication

Communication is the process of exchanging information, ideas, thoughts, and feelings between individuals through verbal, non-verbal, and written means (Dusu, 2024). It is also seen as an interactive process that involves sharing knowledge and understanding, which is essential for effective teaching and learning (Asrar, 2018). In an educational setting, communication transcends mere transmission of information; it is a dynamic process that involves interaction between educators and students. Effective communication facilitates knowledge transfer, enhances understanding, and fosters a collaborative learning environment. This process encompasses various forms, including verbal communication (spoken or written), non-verbal cues (like body language and gestures), and visual aids (such as charts and diagrams), all of which together create a comprehensive learning experience (Fashola, 2017).

Effective communication in student learning is essential. First, it enhances understanding by helping students grasp complex concepts and ideas, making learning more accessible and effective. Furthermore, when educators communicate effectively, students are more likely to participate actively in discussions, ask questions, and express their thoughts, which leads to a more engaging learning environment. In addition, good communication enhances positive relationships between educators and students, creating a supportive atmosphere that encourages learning and personal growth. Moreover, effective communication allows for timely feedback, which is essential for students to understand their progress and identify areas needing improvement (Fashola, 2017).

In recent years, mobile learning applications have significantly enhanced communication in educational settings. These tools facilitate real-time interaction between students and educators, allowing for immediate feedback and support. Features such as discussion forums, instant messaging, and collaboration tools within mobile apps enable students to communicate effortlessly with their peers and instructors, fostering a sense of community and engagement. Mobile learning apps often include multimedia elements, such as videos and interactive content, which can help clarify complex

concepts and encourage discussions (Kumar & Chand, 2022). This increased connectivity and accessibility promote a more collaborative and participatory learning environment.

Factors Militating Against Effective Implementation of Mobile Learning Apps In Tertiary Institutions

The implementation of mobile learning apps in tertiary institutions holds promise for enhancing education, but several barriers hinder their effective use. Some of the challenges are discussed in the succeeding paragraphs.

a). **Lack of Adequate Infrastructure:** Many institutions face insufficient technological resources, such as unreliable internet and limited access to devices, which restrict students' ability to utilise mobile learning apps effectively (Alhassan&Andrew, 2020).

b).**Insufficient Training for Educators:** Some institutions often lack the skills to integrate mobile learning apps into their teaching. This gap leads to underutilization of technology, as lecturers and students may feel unprepared to use these tools effectively (Baker,2021).

c). **Resistance to Change:** Some lecturers and students resist adopting new technologies due to comfort with traditional methods or fear of the unknown. Overcoming this resistance requires fostering a culture that embraces innovation (Hwang, 2020).

d).**Technical Issues:** Problems such as software bugs and compatibility challenges can frustrate users and diminish engagement with mobile learning apps. Institutions sometimes do not prioritise reliable applications and provide ongoing technical support, which limits the use of mobile learning apps(Alhassan&Andrew, 2020).

e).**Lack of Institutional Support:** Effective mobile learning implementation requires strong administrative commitment, including funding and strategic planning. Sometimes the needed support is not given, which often leads to fragmented approaches to mobile learning (Baker, 2021).

f).**Varying Levels of Digital Literacy:** Students and lecturers possess different levels of digital skills, which can create disparities in learning experiences. Institutions that do not assess and support students' digital competencies to ensure equitable access to mobile learning will normally suffer setbacks in mobile learning apps usage(Hwang, 2020).

Theoretical Framework Constructivist Learning Theory

The constructivist Learning theory was propounded by Piaget (1954) and Vygotsky (1978). Constructivist Learning Theory posits that learners construct knowledge through experiences and reflections, emphasising the active role of the learner in the learning process. This theory suggests that learning is more effective when students are actively involved in their learning rather than passively receiving information. Going by the theory definition, mobile apps can facilitate constructivist learning by providing interactive and engaging content that allows students to explore, experiment, and collaborate with peers. Features such as discussion forums and collaborative projects within mobile learning apps promote social interaction and knowledge sharing, which are critical to the constructivist approach. By encouraging students to take ownership of their learning, mobile apps enhance engagement and communication, allowing learners to construct knowledge meaningfully.

Self-Determination Theory (SDT)

Self-determination theory was propounded by Deci and Ryan (1985). The Self-Determination Theory emphasises the importance of intrinsic motivation and the psychological needs for autonomy, competence, and relatedness in facilitating optimal learning and engagement. Based on the theory, mobile apps can support the principles of Self-Determination Theory by offering personalised learning experiences that empower students to make choices about their learning paths (autonomy), challenge them to develop their skills (competence), and foster connections with peers and instructors (relatedness). When students feel their needs for autonomy, competence, and relatedness are met through mobile learning apps, their intrinsic motivation increases, leading to higher levels of engagement and effective communication in the learning process.

Empirical Review

Al-Emran, Mezhyuev and Hamad's (2019) study was on the “Effectiveness of Mobile Learning Apps in Enhancing Student Engagement”. The study investigated the impact of mobile learning applications on student engagement in higher education. The researchers developed a mobile app that included interactive features such as quizzes, discussion forums, and multimedia resources. Results revealed that students who used the

mobile app demonstrated significantly higher levels of engagement compared to those who relied on traditional learning methods. The app's interactive features encouraged active participation and collaboration among students. Additionally, the study found that the use of mobile applications positively influenced students' motivation and satisfaction with their learning experience. It was suggested that there is a need for further research to explore long-term impacts on academic performance and retention. The reviewed study highlighted the potential of mobile learning apps to enhance student engagement through interactive features. By fostering collaboration and active participation, mobile apps can create a more dynamic learning environment.

Similarly, Kearney and Maher(2020) studied the “Impact of Mobile Communication Tools on Student Collaboration”. The empirical study examined the role of mobile communication tools in facilitating collaboration among students in a blended learning environment. The researchers focused on a mobile application that allowed students to engage in group discussions and share resources. Results indicated that the use of mobile communication tools significantly improved students' collaboration and engagement. Students reported feeling more connected to their peers and more willing to participate in group activities. The study also identified that real-time communication capabilities were crucial for enhancing collaboration, as they allowed students to coordinate effectively and share insights instantly. The study under review underscores the importance of mobile communication tools in fostering student collaboration and engagement. The findings suggest that mobile apps can bridge communication gaps, particularly in blended learning environments. However, the study calls for additional research to examine the effects of different types of mobile communication features on various aspects of student engagement.

Methodology

The study is a descriptive survey conducted in Anambra State. It was designed to examine the impact of mobile applications on student engagement and communication in educational settings. The descriptive survey method allows for the collection of quantitative data from a diverse group of participants, providing a comprehensive understanding of their experiences and perceptions. The target population for this study includes undergraduate students enrolled in various programmes at

NnamdiAzikiweUniversityand OdimegwuOjukwu University in Anambra state. A sample size of 300 respondents, comprising 30 lecturers and 270 students, was drawn from the two tertiary institutions using a convenience sampling technique. Data were elicited by means of a self-designed structured questionnaire tagged Mobile Learning App and Student Engagement and Communication Questionnaire (MOLASECQ). The questionnaire consists of sections A and B. SectionAfocuses on personal data of the respondents, and Section Bdeals with the specific objectives of the study. The instrument was validated by three lecturers from Anambra State University and was pilot-tested with a sample of 20 respondents, which yielded a Cronbach-alpha reliability of 0.82. The data collection process involved distributing the questionnaire to participants using the direct delivery method, and it lasted for 10 days. Data obtained were analysed using the mean and standard deviation (SD) for the research questions as well as Chi-Square for the hypothesis.

RESULTS

Research Question 1: What is the impact of mobile learning App on student engagement in tertiary institutions in Anambra state?

Table 1: Impact of Mobile Learning Apps on Student Engagement in Tertiary Institutions

S/N	Statement	SA	A	D	SD	$\sum Fx$	N	$\bar{X}$	Std	Remark
1.	Mobile learning apps make students interested in the lessons	148	126	17	09	957	300	3.19	.224	Agree
2.	Students enjoy the interactive features provided by mobile learning apps	147	149	02	02	1041	300	3.47	.536	Agree
3.	The apps encourage students in class discussions	156	126	13	05	1053	300	3.51	.315	Agree
4.	Students learn more and better using the apps than traditional mode	165	128	05	02	1026	300	3.42	.663	Agree

5.	The use of mobile apps enhances students' group work	159	126	10	05	1100	300	3.67	.321	Agree
Criterion Mean: 2.50						Cumulative Mean: 3.42				

Table 1 reveals that mobile apps have a positive impact on student engagement. This is seen as all the items have a mean value above the criterion mean of 2.50. Notable among the impacts is the fact that mobile learning apps encourage students in class discussions with a mean score of 3.47.

Research Question 2- How do mobile learning Apps impact student communication in tertiary institutions in Anambra state?

Table 2: Influence of Mobile Learning Apps on Communication in Tertiary Institutions

S/N	Statement	SA	A	D	SD	$\sum Fx$	N	$\bar{X}$	Std	Remark
1.	Mobile learning apps enhance the communication of students with lecturers	143	120	20	17	906	300	3.02	.425	Agree
2.	Students easily share ideas with their mates via the apps	135	141	15	09	861	300	2.87	.430	Agree
3.	Mobile learning apps enhance group work and communication.	178	117	03	02	942	300	3.14	.432	Agree
4.	The use of mobile apps facilitates immediate feedback from lecturers.	168	116	11	05	990	300	3.30	.470	Agree
5.	The apps help to improve students' communication skills.	129	141	26	04	882	300	2.94	.392	Agree
Criterion Mean: 2.50						Cumulative Mean: 3.12				

Evidences in Table 2 show that mobile learning apps positively influence communication. This is typified by the fact that all the items are valid, as each has a mean

value above the 2.50 criterion. In the same vein, Table 2 also shows that the use of mobile apps facilitates immediate feedback from lecturers with a mean of 3.30 among others.

Research Question 3- What factors militate against the effective implementation of mobile learning Apps in tertiary institutions in Anambra state?

Table 3: Factors Militating Against Effective Implementation of Mobile Learning Apps in Tertiary Institutions

S/N	Statement	SA	A	D	SD	$\sum Fx$	N	$\bar{X}$	Std	Remark
1.	Poor access to internet connectivity	143	120	23	14	906	300	3.02	.425	Agree
2.	Poor digital literacy on the part of lecturers and students	135	141	15	09	861	300	2.87	.430	Agree
3.	Technical hitches with some apps hinder effective use	169	127	03	01	952	300	3.17	.432	Agree
4.	Poor support from the school regarding the use of the apps in pedagogy	158	130	10	02	990	300	3.30	.470	Agree
5.	Resistance to change hinders the effective use of some apps in schools	119	145	25	11	882	300	2.94	.392	Agree
Criterion Mean: 2.50						Cumulative Mean: 3.05				

Table 3 reveals that poor support from schools regarding the use of the apps in pedagogy (3.30) and technical hitches with some apps hinder effective use (3.17) are the leading factors that impede effective use of mobile learning apps in tertiary institutions. All other factors are equally valid, as each has a mean score above the 2.50 criterion mean.

Hypothesis One: There is no significant influence of mobile learning app on student engagement and communication in tertiary institutions in Anambra state.

Table 4: Chi-Square Summary of the Influence of Mobile Learning App on Student Engagement and Communication in Tertiary Institutions

Variables	Fo	Fe	$(Fo-Fe)^2$	$\frac{(Fo-fe)^2}{Fe}$	Df	A	X^2 cal	X^2 table
Engagement	185	150	1225	8.167	1	0.05	16.334	3.84

Communication	115	150	1225	8.167
Total	300	300	2450	16.334

Data in Table 4 show that our calculated X^2 value of 16.334 is greater than table value of 3.84 at 0.05 level of significance, and as such the null hypothesis is rejected. This means that there is a significant influence of mobile learning apps on student engagement and communication in tertiary institutions in Anambra state.

Discussion

The study is on the influence of mobile learning apps on student engagement and communication in tertiary institutions in Anambra state. The essence was to examine if the use of mobile apps in instructional pedagogy would positively impact student engagement and communication. The analysis of research question one on mobile apps and student engagement found that the application of mobile learning apps enhances student engagement. This is because the mobile app makes lessons interesting and facilitates group work, among other benefits. These findings align with Gunuc and Kuzu(2015), who asserted that students who are engaged are more likely to excel academically because they invest time and effort into their studies due to interest derived.

In the same manner, it was gathered that mobile learning apps enhance communication. Students who are exposed to mobile learning apps were able to communicate better and faster and they received immediate feedback from lecturers. These findings are supported by the notion of Fashola(2017), who stated that effective communication allows for timely feedback, which is essential for students to understand their progress and identify areas needing improvement. The study equally identified some factors that pose threats to effective implementation of mobile learning apps to include resistance to change, varying levels of digital literacy, among others. These findings are in agreement with Hwang (2020), who noted that long-term adoption of the traditional mode of instruction has made many students and lecturers fear adapting to the new normal in education, which is the use of technology in the instructional process. The resistance, which is rooted in fear, often makes them lose interest in exploring the benefits of the application of mobile learning apps in education.

Conclusion

The study examined the influence of mobile learning apps on student engagement and communication in tertiary institutions. From the findings, it was gathered that the application of mobile learning apps helps in improving student engagement due to the fact that mobile learning apps make lessons interesting and facilitate students' involvement in group work. Also, the study found that communication was enhanced through the application of mobile learning apps in instructional processes, as students received immediate feedback about their work from lecturers and students were better able to share ideas and engage in group discussion without distance barriers. Finally, some of the threats to effective implementation of mobile learning apps in tertiary institutions include resistance to change, technical hitches, and varying levels of digital literacy, among others.

Recommendations

Sequel to the findings from the study, the following are recommended:

1. The study found that the use of mobile learning apps helped in student engagement; therefore, it is recommended that the authorities of tertiary institutions should harness their resources to provide relevant mobile learning apps in their institutions to support student engagement.
2. The use of mobile learning apps was found to improve communication; consequently, it is suggested that students and lecturers should imbibe the use of mobile learning apps to enhance communication.
3. Some factors, such as technical hitches, hinder effective implementation of mobile learning apps in tertiary institutions; therefore, it is advised that authorities of tertiary institutions should make efforts to address technical challenges by engaging the services of an expert to address such hitches.
4. Resistance to change was found as a major threat to effective implementation of mobile learning apps in tertiary institutions; therefore, it is imperative to conduct an orientation to all students and lecturers to enlighten them about the potential benefits of mobile learning apps and their efficacy in improving learning outcomes, especially in the twenty-first century.

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