

IMPACTS OF SHIFT FROM PAPER AND PENCIL TO MOBILE RECORD NOTE-TAKING AMONG ABIA STATE UNIVERSITY STUDENTS

Akubugwo, Ijeoma Ginikanwa

Department of Curriculum and Teacher Education

Faculty of Education

Abia State University Uturu, Nigeria

Email: Ije1468@gmail.com

Contact: +2347031584260

Abstract

*The study investigated the impacts of the shift from paper and pencil to mobile record note-taking among Abia State University students. Descriptive research methods were employed for the study for accuracy and generalization. The study population comprises 6,264 students in Abia State University, while the sample for the study was 626 indicating 10% of the total population. The instrument for data collection titled "Paper and Pencil to Mobile Record Note-Taking Questionnaire" (PPMRNTQ) validated by three experts was used for the study. It was subjected to reliability using the Cronbach's Alpha reliability technique and reliability coefficients of 0.82 and 0.85 returned indicated that the instrument was reliable for the study. The instrument was modified along a four-point modified Likert scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD) and weighed 4, 3, 2, and 1 respectively. Mean and standard deviation were used to answer the research questions. A multi-stage sampling technique was deployed for the study; firstly, the population of 6,264 was clustered into 10 faculties, secondly, random sampling was employed to select 5 faculties, thirdly proportionate sampling was used to assign participants for the study. 626 copies of the questionnaire were distributed, while 482 copies of the questionnaire were retrieved and used for the study. Mean and standard deviation were used to answer the research questions. With a benchmark of 2.50, mean scores will be judged using the benchmark. The finding from the study reveals that mobile note recording positively impacts Abia State University Students in their academics in such areas as improving understanding, organizing and retrieving information, collaboration among students and so on. **The study found that among the motives behind the use of mobile note-recording include, ensuring accuracy and convenience. The study concludes that shifting from paper and pencil to mobile note-taking positively impacts Abia State University students. The motive behind the use of mobile note-recording is convenience; this can allow students to revisit materials in their own time and also improve the accuracy of class content. The study recommends that the government should make it compulsory for schools to demand mobile recording devices as part of the requirements for registration as it would enable students to learn better; especially in instances where there are large classrooms.***

Keywords: Mobile record note-taking, information and communication technology, students, teachers

Introduction

Information and Communication Technology (ICT) encompasses a broad range of technologies used to manage, process, and communicate information. ICT integrates tools and applications that enable the creation, storage, retrieval, transmission, and manipulation of data, making it a cornerstone of modern-day education, business, healthcare, governance, and other sectors. It combines hardware, software, networks, and digital systems that facilitate efficient and effective communication and information exchange (Adeyemi, 2023). ICT has revolutionized how individuals and organizations operate, transforming traditional methods of communication and information dissemination into digital, interactive, and real-time processes. The integration of ICT in education, for example, has led to the development of e-learning platforms, virtual classrooms, and digital libraries, thereby expanding access to knowledge and improving teaching and learning outcomes (Nwafor & Eze, 2023).

A myriad of academic responsibilities is involved in the teaching and learning process at tertiary level. According to Stacy & Cain (2015) among these responsibilities note-taking is assumed to a large extent, to be the essential component of proper classroom activities as it concerns teaching and learning. Note-taking is essential and easiest way through which students in the university obtain information from lectures, text books, seminar Presentations, tutorials etcetera and use them for future reflections and recalling (Schoen, 2012, Nguyen, 2006, Boch & Pialot, 2005). Paper and pencil have been a popular means of note-taking for over decades universally, (Riemer, Brimhall, Cao, O'Reilly, 2009). Paper and pencil note-taking has been purposed to enhance students' understanding, concentration, handwriting, vocabulary improvement and others, (Nguyen, 2006). Flexibility and ability to use diverse formats and exclusive notations are among the benefits (Reimer, Brimhall, Cao, & O'Reilly, 2009).

There are arguments that paper and pencil note-taking improves the ability of students to decode classroom information and replicate it in a way that will be meaningful personally (Roediger, Gallo & Garcia, 2012). Students who write down more notes during lectures are ascribed to have acquired improved retention and more so creditably perform well in the examination when compared with their counterparts who use mobile telephone record-note taking (Castello & Monereo, 2019; William & Eggert, 2022). Commenting on the vital role of note taking technique, Stacy & Cain (2015) argued that if there is no valuable knowledge of listening and notes taking, there is every tendency for students to become incompetent, unable to listen, read, integrate, organize and utilize information. In contrary, Kara, Heather, Hanna, Kaelah & Sidney (2019) verified that students spend considerable time in both paper or pencil and mobile photo telephone recording in reading them so as to perform creditably well. Further, Kara et al. (2019) asserted that students using digital resources are more in number; both paper or pencil and digital source materials for learning are common among students in the tertiary institutions and are necessary for optimal performance and better understanding

However, with notable advances in modern technology, such as the advent of smartphones universally and Nigeria in particular, students depend heavily on the use of smartphones to support several academic works, (Kafyulilo, 2014; Rabiuet al., 2016). Students' interaction, creation, sharing and exchanging of information as well as their learning methods have virtually been revolutionized and redefined by smartphones (Odojin, 2022). Mobile note-taking refers to using mobile devices such as smartphones, tablets, or laptops to create, organize, and store notes digitally. This practice leverages mobile technology to provide a convenient, flexible, and efficient alternative to traditional paper-based note-taking. The educational importance of note-taking has been acknowledged and emphasized worldwide. Anderson and Armbruster (2016) discovered that

students who take notes learn and remember information while they are taking the notes, and they are better able to retrieve that information later.

These strategies are currently shifting students from the long-established paper and pencil note-taking to a digitalized note-taking technique referred to in this study as "mobile telephone record note-taking" at a frightening speed, (McCrudden, Schraw, Hartly & Kenneth, 2004). Again, mobile note-recording, which involves capturing information through audio or video on mobile devices, offers unique advantages over traditional note-taking for students. It caters to diverse learning styles, enhances flexibility, and leverages technology for a more dynamic and efficient educational experience. Mobile note-recording captures exact details from lectures or discussions, reducing the risk of missing critical information. Wang, Li and Chen (2020) noted that students who use recording tools are better able to revisit and clarify complex concepts, improving comprehension over time. It is also important to understand that recordings support auditory and visual learners by enabling playback and review in a preferred learning format. Mayer (2014) highlights that combining audio and visual materials enhances understanding and retention compared to text-only resources.

Furthermore, with the aid of mobile record notetaking, students can focus on understanding content during lectures instead of writing notes, and then review recordings at their convenience, thereby reducing cognitive load during lectures, allowing for more effective learning (Alharbi, Abdullah, & Qureshi, 2019). Importantly, recordings can support students with learning disabilities. Hossain and Rahman (2017) found that mobile recordings particularly benefited non-native speakers and students with dyslexia, who required additional processing time. Mobile notes can also help students with language barriers, or other challenges by allowing repeated playback and slower review; Recordings can be shared among peers, fostering

collaboration and ensuring everyone has access to accurate information. According to Johnson and Johnson (2021), shared resources enhance group learning dynamics and collective understanding of course material.

It is also important to emphasize that mobile devices can be a source of distraction for students as some students may delve into watching pictures, sending text messages or even using gaming applications while in class. Blikstad-Balas and Davies (2017) concluded that most students misuse their smartphones in school and at home. There seems to be a debate regarding the use of mobile phones during lecture time and its association with student academic performance (Junco, 2015; Wood, Mirza, & Shaw, 2018). Kuznekoff, Munz and Titsworth (2015) have pointed out that the exchange process of (un)related messages through smartphones during lecture time affects student performance and the note-taking process.

Some empirical studies have been done in this area of study; for instance, Philip and Garcia (2015) reported that smartphone usage during the learning process in the class has a positive outcome on the students. Also, Beland and Murphy (2016) perceived that the prohibition of smartphone usage during the learning process in four English cities positively influenced the students' results at the end of the compulsory nine years of schooling. The researchers observed that students attending schools in English cities where the use of Smartphones is prohibited embraced higher academic performance than when smartphones were allowed during the learning process.

Sun and Li (2019) investigated the effectiveness of digital note-taking on students' performance in declarative, procedural and conditional knowledge learning. The results indicate that the students who recorded notes digitally scored significantly higher than those who recorded notes conventionally. The students who were designated as "excellent," and those who were

designated as “low-performing,” were most likely to benefit from this new method of note-taking. Odofin (2022) investigated the influence of Digital Technology on secondary school student's academic engagement behaviour in Nigeria. The study found that digital technology improves information, entertainment and education as being crucial in enhancing or hindering secondary school students' academic engagement behaviour during learning or when being taught.

Statement of the Problem

The advent of mobile technology has significantly transformed educational practices, including how students take and manage notes. At Abia State University, traditional paper-and-pencil note-taking has been a long-standing method for recording and organizing academic content. However, with the growing accessibility of mobile devices and note-taking applications, there has been a noticeable shift towards mobile note-recording.

While this transition offers potential benefits such as improved accessibility, organization, and multimodal learning, it also raises concerns about its implications for academic performance, engagement, and comprehension. Research suggests that mobile note-recording may enhance students' ability to capture detailed information and promote collaborative learning. However, issues such as over-reliance on technology, distractions from non-academic applications, and the risk of technical failures pose challenges to its effective use.

Despite the increasing adoption of mobile note-recording tools among students at Abia State University, there is limited empirical evidence on the specific impacts of this shift on their academic outcomes, study habits, and learning experiences. This gap in understanding highlights the need for a systematic investigation into how mobile note-taking influences students' educational practices, the challenges they encounter, and

the effectiveness of this transition compared to traditional methods.

This study, therefore, seeks to examine the impacts of shifting from paper-and-pencil to mobile note-taking among Abia State University students, exploring its effects on their academic performance, engagement, and overall learning efficiency.

Research Questions

1. What are the impacts of transitioning from paper-and-pencil note-taking to mobile note-recording on Abia State University students?
2. What are the motives behind using mobile note-recording among Abia State University students?

Methodology

The study adopted a descriptive survey research design because the study sought to understand different perspectives on the research. A descriptive survey is a research method used to gather information about a population's characteristics, behaviours, opinions, or perceptions at a specific point in time. The population of the study comprises 6,264 students, while the sample for the study was 626 indicating 10% of the total population. A multi-stage sampling technique was deployed for the study; firstly, the population of 6,264 was clustered into 10 faculties, secondly, random sampling was employed to select 5 faculties, thirdly proportionate sampling was used to assign participants for the study. The instrument for data collection titled “Paper and Pencil to Mobile Record Note-Taking Questionnaire” (PPMRNTQ) validated by three experts was used for the study. It was subjected to reliability using the Cronbach's Alpha reliability technique and reliability coefficients of 0.82 and 0.85 returned indicated that the instrument was reliable for the study. 626 copies of the questionnaire were distributed, while 482

copies of the questionnaire were retrieved and used for the study. Mean and Standard Deviation were used to answer the research questions. With a bench mark of 2.50, Mean Scores will be judged using the benchmark.

Results

Research Question One: What are the impacts of transitioning from paper-and-pencil note-taking to mobile note-recording on Abia State University students?

Table 1: Summary of Mean and Standard Deviation of Impacts of transitioning from paper-and-pencil note-taking to mobile note-recording

S/ N	Items	SA	A	D	SD	Total	Mean
1.	improves understanding and engagement during lectures	146	162	131	43	482	2.85
2.	helps me in organizing, retrieving, and managing notes compared to paper-and-pencil methods	160	203	74	45	482	2.99
3.	helps me to collaborate outside the class such as studying, revising, or group discussions	160	176	73	73	482	2.88
4.	enables me to capture complete and accurate information from lectures or discussions, reducing the risk of missing details	190	190	59	43	482	3.09
5.	allows me to focus on understanding lectures during class rather than rushing to take notes, optimizing my learning experience	132	263	58	29	482	3.03
	Grand Mean						2.96

Table 1 shows the summary of mean and standard deviation of the impact of transitioning from paper-and-pencil note taking to mobile note-recording on Abia State University students. Items 1 and 2 shows a mean score of 2.85 and 2.99 respectively that mobile note recording improves understanding and engagement during lectures and also that it helps students in organizing, retrieving, and managing notes compared to paper-and-pencil methods. Items 3, 4 and 5 shows mean scores of 2.88, 3.09 and 3.003 respectively that mobile note recording helps me to collaborate outside the class such as studying, revising, or group

discussions. It also enables me to capture complete and accurate information from lectures or discussions, reducing the risk of missing details thereby allowing me to focus on understanding lectures during class rather than rushing to take notes and optimizing my learning experience. With a grand mean score of 2.96, we can infer that mobile note recording has a positive impact on Abia State University Students.

Research Question Two: What are the motives behind using mobile note-recording among Abia State University students?

Table 2: Motive behind the use of mobile note -recording among Abia Stated University Students

S/N	Items	SA	A	D	SD	Total	Mean	Decision
1.	I prefer using mobile note-recording because I enjoy incorporating technology into my learning process.	104	235	91	52	482	2.81	NS
2.	Allows me to pause, replay, or review information at my own pace.	117	247	92	26	482	2.94	NS
3.	Mobile note -recording reduces the risk of errors or missing important details during lectures.	170	234	52	26	482	3.14	S
4.	Use of mobile note -recording is more convenient than carrying paper and pens	194	158	104	26	482	3.08	S
Grand Mean							2.99	

Table 2 summarizes the mean and standard deviation of the motives behind using mobile note-recording among Abia State University Students. Items 1 and 2 reveal mean scores of 2.81 and 2.94 respectively. Students prefer using mobile note-recording because they enjoy incorporating technology into their learning process and it allows them to pause, replay, or review information at their own pace. Further, items 3 and 4 reveal mean scores of 3.14 and 3.08 respectively that mobile note-recording reduces the risk of errors or missing important details during lectures and that the use of mobile note-recording is more convenient than carrying paper and pens. Considering the grand mean score of 2.99, it can be deduced that the motive behind the use of mobile note-recording is to ensure accuracy and convenience.

Discussions

Research question one investigated the impacts of transitioning from paper-and-pencil note-taking to mobile note-recording on Abia State University students. The study found that mobile note recording positively impacts Abia State University Students. This implies that transitioning from paper and pencil note-taking to mobile note-recording positively impacts students in their academics in such areas as improving understanding, organizing and retrieving information, collaboration among students and so on. The finding is in agreement with that of Sun and Li (2019) who investigated the effectiveness of digital note-taking on students' performance in declarative, procedural and conditional knowledge learning. The results indicate that the students who recorded notes digitally scored significantly higher than those who recorded notes conventionally.

Research question two investigated the motives behind using mobile note-recording among Abia State University students. The study found that among the motives behind the use of mobile note-recording include; to ensure accuracy and convenience. This finding is an indication that students find mobile note recording convenient; maybe the ability to record and listen to the information over and over in one's convenient time and also talking about accuracy; it may enable students not to miss important details in the classroom. The finding from the study is in agreement with that of Odofin (2022) who investigated the influence of digital technology on secondary school students' academic engagement behaviour in Nigeria. The study found that digital technology improves information, entertainment and education as being crucial in enhancing or hindering secondary school students' academic engagement behaviour during learning or when being taught.

Conclusions

The study concludes that shifting from paper and pencil to mobile note-taking positively impacts Abia State University students. The motive behind the use of mobile note-recording is convenience; this can allow students to revisit materials in their own time and also improve the accuracy of class content. It is important to mention that this practice can enhance learning outside the four walls of the classroom and can also help students who are unable to make it to the classroom.

Recommendations

The following recommendations were made;

1. The government should make it compulsory for schools to demand for mobile recording devices as part of requirements for registration as it would enable students to learn better; especially in instances where there are large classroom.
2. School leaders should moderate the use of mobile devices to eliminate possibilities of over use of distraction especially during classrooms activities.

References–

Recommendations

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