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Exploring the impact of skooly technology on the academic performance of Second-Year students at the University of Calabar, cross river state, Nigeria

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Abstract

This study investigated the impact of Skooly Technology on academic performance of second year educational technology students at the University of Calabar, Cross River State. Despite previous research on learning technologies, there is need for suitable technological platforms that support local content and design principles to enhance university courses. This quasi -experimental study used a pretest-posttest non-randomized design with 131 participants selected from their intact classes. The Educational Technology Performance Test (ETPT) was validated by three lecturers for face and content validity and test blueprint method was used to design the instrument. The reliability coefficient was 0.76 using the Split Half Method. ANCOVA analysis revealed that Skooly technology significantly enhanced academic performance regardless of gender and cognitive ability. The findings suggest that Skooly technology can improve educational outcomes in university courses, aligning with national goals and cultural practices. Universities can leverage Skooly Technology to support second-year students' studies at minimal or no cost, informed by needs assessments to achieve instructional goals. Lecturers can enhance teaching by using instructional models to design courses tailored to students' characteristics, beyond just following course outlines, before utilizing Skooly technology. Lecturers and instructional designers should consider students' gender and cognitive abilities during the design phase of instruction to enhance academic performance. promoting inclusive and effective learning experience.

Keywords: Skooly technology, Academic performance, Second-Year students, University of Calabar, Cross river state, Nigeria

Introduction

Skooly is a mobile instructional application available for download on Android devices and personal computer via the Google Play Store. This is a School-based application that enables lecturers and students to access online instruction and facilitate effective online classroom communication. Skooly offers real time features, including:

- Lesson scheduling
- Reminder for upcoming lessons
- Lecturers sharing instructional resources (videos, graphics and packages) with students
- Streamline access to daily schoolwork, all in a few clicks.

Despite the potential of Skooly technology in higher education, its adoption remains limited. A nationwide study in Australia found that in 2016, only 20 out of 177 university -affiliated mobile application were designed for instructional purposes, such as teaching and learning (Penchenkina et al.,2017). Although, the use of instructional mobile technology has increased in institutions, few lecturers have embraced it. Skooly technology is designed to engage students in testing their knowledge of concept introduced during courses, delivering lectures directly to students' mobile devices at strategic times. Skooly learning encompasses activities before, during and after class, both online and offline. The principles of mobile Ubiquitous learning include mobility, adaptability, accessibility, interactivity, interoperability, immediacy, permanency, pervasiveness and context awareness (Yahamoto-Wilson,2020). However,

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students' academic performance when using Skooly is influenced by variables such as gender and cognitive ability in the digital setting

Gender plays a significant role in Skooly technology adoption, with male students reportedly more technologically proficient than their female counterparts (Gaswami & Dutta, 2016) . Research on the impact of gender on academic performance in online classroom has yielded mixed results. Asha et al., (2019 and King (2020) found that gender has significant effect on academic performance, with gender being a strong predictor of difference in performance between male and female students. However, Adam and Olajumoke (2016) found no significant difference in the male and female students, despite efforts to bridge the gender gap. Hilano and Wichabee (2017) suggest that the use of effective learning tools can be influenced by gender. Miller (2012) notes that the gender gap in learning is not fixed and can vary, including the context of mobile apps like Skooly technology. In contrast, Blanco (2016) found no significant difference in the academic performance of male and female students in online classroom communication, suggesting that both genders perform equally well. This gender disparity in Skooly technology use led Ramirez-Correa et al (2016) to explore the existing literature on gender differences in learning, which reveals that while gender differences persist in certain ways, they are diminishing in others. Notably, the impact of gender on students' use of technology, including Skooly, is gradually diminishing, suggesting a more equitable technological engagement among male and female students.

Cognitive abilities play a vital role in successful Skooly learning, as they enable students to effectively utilize digital skills during Skooly sessions. These skills include knowing how to access online classes via link, participating actively in virtual activities, and familiarizing themselves with various features available during online session. Basic proficiency in operating Skooly equipment is essential for students in remote locations to engage in self-directed learning, independent of lecturers' presence. This self-reliance fosters a student-centered approach to teaching and learning, promoting autonomy and freedom from control (Netaya et al., 2019).

Students' cognitive ability skills and knowledge are assessed through demonstration in the digital classroom, such as submitting assignments, participating in discussions, answering test questions, and using Skooly features to respond to instructional tasks, leading to excellent grades. Cognitive ability enables students to connect real-life experience to online lesson activities, promoting deeper understanding. Cognitive ability, as described by Munro et al., (2017) encompass underlying skills like planning, flexibility, self-regulation, and purposeful behavior, including reasoning, problem solving, abstract thinking, and quick learning. Students with high cognitive ability can efficiently retrieve and apply information in task situation, facilitated by their brain's ability to process quickly and efficiently. This leads to the formation of new ideas, knowledge, and skills during instruction. By leveraging cognitive ability skills, students can manipulate tasks to produce results, enhancing learning through high-order thinking, critical thinking, and problem-solving skills, fostered by interaction, collaboration, and participation in the instructional process (Ayoub, 2019). Therefore, lecturers must be realistic in the design phase of instruction, ensuring that activities align with lesson goals, supporting students' cognition, as suggested by McCloskey et al. (2013).

Chen et al., (2017) emphasize that the effective utilization of Skooly technology hinges on students' digital literacy skills, encompassing the ability to access, manage, and evaluate digital resources. While students can readily capture images using their mobile phone cameras, they rarely leverage these tools for meaningful learning experiences. Although, students acknowledge the value of Skooly technology in academic pursuits, they rely on institutions and lecturers for opportunities and encouragement to integrate these tools into pedagogical practices. Notably, research gaps persist in exploring the impact of Skooly technology on academic performance particularly regarding gender and cognitive ability levels among university students. This oversight perpetuates challenges in fostering students' digital learning.

This study investigated the effect of Skooly usage on academic performance of second year educational technology students at the University of Calabar within Cross River State, Nigeria. The research questions guiding this study were: firstly, what is the

difference in academic performance between educational technology second year students taught with Skooly technology and those taught using traditional expository method? Secondly, what is the difference in academic performance between male and female educational technology second students taught using Skooly Technology? Finally, what is the difference in the academic performance among educational technology second year students taught using Skooly technology with low, moderate and high cognitive ability level? The study employed the ASSURE model of Instructional design (Serhat, 2015) to systematically plan and deliver the lesson package. This model comprises of six Phases: Analyze Learners, State Objectives, Select Method, Media and Materials, Utilize Media and Materials, Required Learners' Participation and Evaluate and Revise. By applying the ASSURE model, we designed a lesson package that integrated Skooly technology to enhance academic performance in online instructional classes. This study presents a discussion of the conceptual and empirical literature related to the study, research methods, results of the findings and implications for practice and policy.

Related work

Skooly technology and its utilization in the universities

The utilization of Skooly in the online lesson solely depends on adopted strategies, features, lecturers' roles, mechanisms to support easy learning and the desire to realize the learning goals

The utilization of Skooly in online lesson depends on various factors, including adoption strategies, features, lecturers' roles, mechanism to support easy learning and the desire to achieve learning goals. Skooly employs both synchronous and asynchronous strategies, providing advantages to all students. As a newly introduced mobile application for online classes, students can download Skooly from the Google Play Store onto their Android phones and personal computers (PCs). Skooly is a cloud-based classroom mobile application designed for instruction, enabling students to access lectures and content in real-time and at their convenience.

Skooly technology was designed to facilitate the sharing of instructional contents, graphics, and videos between lecturers and students, while keeping progress update in the classroom. Pre Limited launched Skooly technology on December 18, 2018, aiming to maintain online schedule instructions. Skooly technology enables lecturers to conduct all forms of instructional communication during pedagogy and deliver feedback appropriately between lecturers and students.

Skooly technology features are designed for easy use, mirroring traditional classroom tools while offering unique features that supports diverse students' interactions, such as lectures and students-lecturers meeting (Hirsh-Pasek,2015). Skooly boasts various features that enhance the teaching and learning process. According to Penchenkina et al., (2017), the motivational features of Skooly technology include:

- A platform for instructional communication between lecturers and students, with robust feedback mechanisms
- A calendar with advanced features, such as adding and modifying events, and automated reminder sent to students via email about upcoming classes.
- Cameras for capturing graphics and videos essentially for class communication and instructional resources, ensuring efficient content delivery
- Contact icons that allow lecturers to access students contacts in the online classroom
- A built-in microphone for recording audio signal, enabling audio messages to students in the classroom

Lecturers play vital role in ensuring that the designed package is properly developed to achieve the goals of teaching and learning. Mangal & Mangal (2018), using Skooly technology to deliver productive learning experience requires lecturers to have a clear understanding of the purpose and goals of their teaching, lest they be like sailor without a destination in a vast ocean. Etim (2016) emphasizes that lecturers should possess qualities such as sensitivity, honesty, caring, love, helpful, acceptance, compassion, tact, and open-mindedness when designing lesson packages for Skooly technology. Penchenkina et al., (2017) suggest that Skooly technology offers lecturers diverse opportunities to achieve a common goal of enhancing learning,

improving students' outcomes, and facilitating knowledge acquisition and transfers. This can be achieved through situated learning using augmented reality, making learning more accessible and affordable (Hannon and Bower et al., 2014).

To ensure the effective management and transmission of secure instructional messages from lecturers to students, various mechanisms have been put in place to boosts students' confidence and satisfaction. These measures include generating unstructured supplementary service codes (USSD) for security and safety, which lecturers can use to control access to pedagogy and monitoring activities. The university authority can utilize this advantage to enhance students' digital literacy and improve academic performance. Academic performance is crucial as it prepares students with technical knowledge to face 21st-century job challenges. High performers graduate excels in life, while low performers repeat courses and delay graduation, potentially hindering economic growth (Alim, 2012).

Research in Singapore (Jayanthi et al., 2014) and South Africa (Sibanda et al, 2014) highlights factors influencing academic performance, including interest in subjects, co-curricular activities, gender, regular study, cognitive ability, punctuality, daily study hours, parents' socio-economic status, and age (Ali et al.,2013). Effective communication skills, learning facilities, and adequate planning of the content and delivery patterns among lecturers are essential determinants of academic performance (Signh, 2020).

Skooly technology and academic performance

The modalities of utilizing Skooly technology to enhance students' academic performance in universities are crucial, particularly in addressing the challenges posed by the Covid-19 pandemic. The concept of online learning environment and their advantages over traditional teaching method are gaining popularity. The Covid-19 pandemic has disrupted lifestyles globally, prompting a shift to home-based learning via online tools line Google Class, Seesaw, and Dojo Class. This has led to the integration of digital classroom technologies advantage over face-to-face learning, aimed at improving the quality of teaching and learning.

According to Chen et al. (2017) Skooly technology boasts unique capabilities, including connectivity, camera, sensor and GPS, which have great potential to foster academic excellence. Oates et al., (2017) describes Skooly as a platform facilitating instructional communication between lecturers and students, with features such as:

- Calendar with special features (e.g., adding and modifying events and members)
- Camera for graphics and videos supporting class communication and resource delivery
- Contact icons enabling lecturers to access students' contacts in the online classroom and
- Microphone for recording audio signals and sending audio messages to students.

Lecturers designed instructions can reach students with prompt notifications on their internet devices, such as Android, phones, and personal computers, especially when students are added to the classroom during lectures. Etikan et al., (2017), students tend to show improvement in their study when exposed to online classes. Lecturers play a vital role in ensuring that course content is properly developed for students to achieve the goals of the teaching and learning process.

Skooly as an online learning classroom has a profound impact on students, particularly with the abundance of digital resources available to enhance learning. As a digital classroom without physical boundaries, Skooly bridges the gap between lecturers and students, transcending physical location and contiguous space. Through platforms like Moodle WebCT, and digital boards, Skooly enables the sharing of educational materials with students via the web. By adopting a virtual learning strategy, Skooly connects students with their lecturers through computer networks, facilitating resource sharing and interactions. While students' physical positioning is not a concern, the focus lies in fostering interaction between students, lecturers, and peers within the learning platform to share knowledge, resources, and skills for instructional goals. The advancement of mobile applications and wireless communication technologies has led to a surge in online learning studies, enabling students to learn via mobile devices without spatial or temporary constraints. Skooly, as a mobile learning technology, has secured its place in

modern university education systems.

Alison and Shelby (2020) explain that Skooly Technology offers free online learning, which includes live online classes and educational resources for the university students. The authors note that students can receive more than 6 hours a week of live online instruction, with classes led by university tutors vested experience in the course and virtual learning. Core classes include Mathematics, Reading, Writing and Science, while enrichment classes include topics such as history of the national parks and careers in science. Individual University could design content based on their policy and programme using the mobile application to carter for their students' pedagogical needs. Penchenika et al (2017) found that students who scored well on Skooly app tasks achieved higher academic grades than students who chose not to use the app, even though the impact was lower for the science students. Now that the demand for personalized education is growing, Skooly technology with online classes could allow students to engage with course materials whenever and wherever they choose. Taking advantage of Skooly technology in the delivering instructions to university students could help lecturers reach out to their students and keep them interested in the course content, leading to improved outcomes.

Students' use of Skooly for university courses does not completely erase face-to-face contact, instructional interaction to foster lecturers' students' relationship. The expository method of teaching still exists in the university where lecturers explain concepts outside the scope of the instructional platform. Oftentimes, students keep appointments with lecturers to be clarified of certain concepts, construct, psychology and philosophy of the course contents, which online could not explain with clarity. Expository method sequentially outlines with the guiding activities such as lecturers' talk (lecturing), demonstration, assignments and homework, memorizing, reviewing, questioning and discussion in the online platform with students, (Miller,2015; Khan et al., 2018). The learning experience acquired from expository method should be one that reproduces higher order thinking skills and principles such as: creating an intriguing learning environment and combining visual with interactive learning experience that help students to form mental representations and developing cognitive architecture, which assist in unifying the learning, experience (Taher and Khan, 2015). Irrespective of the strategies use for classroom instruction, lecturers should be conscious of the needs assessment of the learners. Erwin (2016) summarizes these needs as, characteristics of the learners; goals for teaching and learning; activities that will best support learning; assessment strategies that will be best measure and drive learning and the culture that infuses the learning environment.

The present study

The present study put the various variables together to ascertain their effects on the academic performance of students using the Skooly technology. Taking cognizance of the initial factors that were taken holistically: adopted strategies, features, lecturers' roles, mechanisms to support easy learning and the desire to realize the learning goals. The researchers also considered the underlining variables, which prompted the following questions:

what is the difference in the academic performance students taught with Skooly technology and those taught using expository method?

- what is the difference in the academic performance of Male and female students taught using Skooly technology?
- what is the difference in the academic performance of students taught using Skooly technology based on low, moderate and high cognitive ability level?

Research context

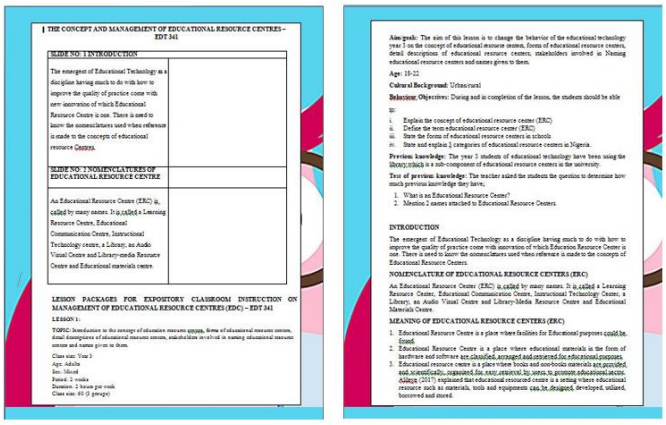
The study was carried out using Skooly technology to lecture second year undergraduate students' course. The effect was compared with the expository method at the University of Calabar, Cross River State in Nigeria. The course taught was topic on educational technology (Educational Resource Center) and attracted students from the various areas of specializations. The researchers adopted Quasi - experimental design using pre-test post-test non - randomized control group for the study. The population of the students (n=151) participated in the study. The students were purposively selected into the experimental (n= 66: 26 males and 40 female) and (n= 65: 28 males and 37 females) control

groups.

The course design adopted was connectivism and constructivism theory of learning in a whole with ASSURE model of instruction to design the instructional lesson package to both the experimental and the control groups. The researchers used Skooly technology downloaded from the Playstore of android phones, iphones and computer devices. The lesson plan was uploaded into Skooly technology for the experimental group. Different elaborate methods of lessons were obtained from Skooly technology and students' progress were monitored during the experiment.

Discussion Tool

Source: Google play store



Source: Google play store

Skooly technology is an online learning technology that is available for instructional process in Google play store of the android phones, iphones and other internets accessible devices. Skooly has a purple-pink, blue owl-like background. As shown in figure 1 above, students and lecturers could connect with one another, schedule course, do assignments and submit within the due submission dates. Skooly technology was designed to enable lecturers and students to share instructional contents, graphics and videos (from files or downloads) keeping progress update with the students in the classroom. Pte Limited produced Skooly technology on 18 December 2018 with the aim of maintaining online schedule instructions. Skooly technology allows lecturers to carry out all forms of instructional communication during pedagogy and deliver feedback appropriately between the instructors and the learners. Skooly Platform is design for lecturers and students instructional communication with adequate feedback mechanism. Skooly technology has Calendar with special features such as add and modify event, automated reminder to students on the next schedule class. Notifications are sent via electronic mail to the class members. We used the Camera for graphics and videos needed for class communication and instructional resources for efficient content delivery with Contact icon that permits lecturers to read all the contact of the students in the online classroom and the Microphone (in build) which is designed to records audio signals for audio messages to the students in the classroom. Above all, Skooly uses online resources and lecturers' improvised lesson design instructional package to enhance students learning outcome.

Data source

The researchers were granted approval from the Head of Department of Educational Technology, Faculty of Education in the University of Calabar to analyze the compared scores of the students using Skooly technology and those taught with expository class. The scope of the approval was limited to the duration of the experiment, which was a period of one month. The study used an instrument titled: Educational Technology Performance Test (ETPT) developed by the researchers. Educational Technology Performance Test contains (50) multiple-choice items which covered the following sub-topics: Introduction to Computer Communication tools, Web and Net Technology, Equipment Needed and How to Surf the Internet, Behaviors Detects and Latest Trends in Computer technology. These topics were carefully selected using the subject specification of Blue Print.

The draft instrument "Educational Technology

Performance Test (ETPT)" with 50 items was submitted for face and content validation to one lecturer in the Department of Educational Technology and one lecturer in

Measurement and Evaluation unit of Educational Foundation, all from the University of Calabar. Item discrimination method of Split Half was adopted for a single administration of Educational Technology Performance Test (ETPT) instrument to 20 second year students in educational technology which yielded (r) = .73. The result (r) was further subjected to Spearman Brown Prophesy Formula to produce a reliability coefficient of 0.79.

Interaction data were obtained from 66 students (26 males and 40 females) in the experimental group and 65 students (28 males and 37 females) from control group who were chosen based on the following criteria for the study:

- The students were cleared by the Head of Department of Educational Technology participate in the study
- The students have learnt Educational Technology Courses for more than a year and the students have standard and workable android phones, laptops, iphone and computer devices to participate in the study. The researchers used Mean and Standard Deviation to analyze the research questions and Analysis of Covariance (ANCOVA) to test for the hypotheses at 0.05 level of significance.

Research hypotheses

Excerpt from the research literature (see the literature on the work) and considering the research context, the researchers narrowed down the scope of the research hypotheses on students' academic performance taught using Skooly technology and expository method, students' gender and students' cognitive ability levels. The research hypotheses were formulated to show the direction of the study. The first research hypothesis was analysed based on the instruments used which captured the students' characteristics, objectives, instructional techniques and evaluation for both experimental and control classes. The experimental group had treatment in Skooly technology for the purpose of research comparison. Gender plays significant role in the use of Skooly (second research hypothesis). Sometimes, male outclass their female counterparts in the use of instructional technology to enhance performance and female show dominance to some levels. It is at this pivotal ground that the research hypothesis on gender was necessary to be analyzed to establish certainty in the result. During the online classes, students tend to exhibit strong cue on the lesson maybe, due to the features of the technology use for the learning and its ability to captivate the interest of the students. The third hypothesis makes it easy to ascertain if those in the low cognitive ability could improve their learning ability when the lecturers adopt Skooly technology to lecture on Educational Technology courses. In each of the hypothesis, we added students' characteristics, objectives and instructional techniques of the lecturers that may influence students' performance in the use of Skooly technology using appropriate instructional models and theories.

The first hypothesis explains the pattern in which students received treatment for both the experimental and control groups. The experimental group received instructional using Skooly technology having two lessons per week posted into their platform while the control received instructions through face-to-face expository class. The lesson was also, delivered by the research based on physical contact equally twice a week to the participants in the study. Students in the Skooly post their questions and received prompt answers from the researchers during the experimental class session. The online classes facilitate students learning and help them stay in touch with their peers and lecturers (Mishra, 2020) and these classes are run at no cost implication to the students. Skooly Technology offered free online learning, which includes live, online classes and educational resources for the university students. She discussed that students can receive more than 6 hours a week of live online instruction, with classes led by university tutors with experience in the course topic and virtual learning contents (Alison & Shelby, 2020). Also, Skooly technology present learning in a unique way for individual students to process and retains new information and skills from the instructor's content, (Sevgi et al, 2018). It is based on the above listed background that we proposed the hypothesis about students' academic characteristics that explains if Skooly technology can enhance the

academic performance of students more than those in the expository class as follows:

$H0_1$: There is no significant difference in academic performance of second year students taught with Skooly technology and those taught with expository method.

The second hypothesis centered on male and female students' academic performance during Skooly technology instruction. Gender poised strong indicator in the use of online instructional strategies to enhance students' performance (Asha et al (2019)). According to Armah *et. al* (2021), males improved in academic performance than females in Mathematics classes during internet activities. Female also perform better in the use of machine learning. This was discovered by Workman and Heyder (2020) who posited that females seem to do better than male and the arts, as well in the natural sciences, despite the latter being a traditional area of male dominance. Wrigley-Asante et al (2023) proved that females' improvement in academic performance at elementary and higher levels of education is not because they are enrolling in easier classes or courses but rather, reflects the competencies they possess in all education field. Harvey et al (2017) posited that there was no significant gender difference in the learning satisfaction of online millennial learners. Given the various dispositions in the finding, we proposed the hypothesis:

$H0_2$: There is no significant difference in the academic performance of male and female educational technology second year students taught using Skooly technology.

The third hypothesis examines the academic performance of students taught using Skooly technology based on low, moderate and high cognitive ability levels. Students' cognitive ability is the tendency of the students to reciprocate the content of the instruction as being taught by the lectures during evaluation. Besides, the content measurement, students' cognitive ability plays significant roles in academic performance. Cognitive ability refers to the human brain's ability to store memory, process and extract information, attention, logical reasoning and thinking transformation that produce (Yueqi and Shaowei, 2022). Cognitive ability is a key factor that affects students' academic performance in online classroom (Liang et al., 2020). This assertion signifies that the greater cueing of the instructional strategies, the higher the cognitive ability of the students. When students' cognitive ability is high, they are able to encode key information more quickly and accurately in memory, thus, enabling the brain to output more and more effective information, resulting in better academic performance (Yueqi and Shaowei, 2022). In order to ascertain the effect of Skooly on the students' academic performance based on cognitive ability levels, each student interacts with the peers and the content of the instruction in Skooly. Based on the literature and Skooly features used in the study, we proposed the hypothesis:

$H0_3$: There is no significant difference in academic performance of educational technology second year students taught with Skooly technology based on low, moderate and high cognitive ability.

To summarize, the three research hypotheses were formulated based on the need for remedial technology as a solution to the immediate scourge of Covid -19 pandemic and other futuristic occurrence, gender disparity, problem affecting students' performance such as cognitive ability levels, the concept of online learning environment and its advantages over the expository method of teaching.

Results and Discussion

The results of the data analysis carried out on the data collected for the study were presented below. The presentation was done in line with the three hypotheses guiding the study.

Testing of the hypotheses

ANCOVA statistical tool was used for testing all the hypotheses at .05 level of significance.

Hypothesis one

There is no significant difference in the academic performance of second year students taught with Skooly technology and those taught with expository method.

Table 1: Summary of Analysis of Covariance (ANOVA) of the performance of students taught with skooly technology and those taught with expository method

Source	Type III sum of Squares	df	Mean Square	F	Sig
Corrected Model	5345.618 [a]	2	2672.81	48.84	.000
Intercept	9218.739	1	9218.739	94.38	.000
Pretest	.15	1	.15	.00	.020
Instructional Strategies	6539.034	1	6539.034	*76.37	.000
Error	7625.029	128	59.57		
Total	52564.491	131			
Corrected Total	12970.647	130			

a. R Squared= .426 (Adjusted R Squared =. 406); F -crit =3.96

The result in Table 1 reveals that the calculated F-value of 76.37 is greater than the critical F-value of 3.96 at 1 and 129 degrees of freedom and at .05 level of significance. With this result, the null hypothesis was rejected. This implies there is a significant difference in academic performance of second year educational technology students when taught using Skooly and those taught with expository method.

Hypothesis two

There is no significant difference in the academic performance of male and female second year students in educational technology taught using Skooly technology in the University of Calabar.

Table 2: Result of Analysis of Covariance (ANCOVA) of difference in the academic performance of educational technology second year students taught using skooly technology based on gender

Sources	Type III Sum Of Squares	Df.	Mean Square	F-cal	Sig.
Corrected Model	356.38[a]	2	178.19	3.81	.07
Intercept	7132.603	1	7132.603	132.21	.00
Pre-test	15.79	1	15.79	.43	.52
Gender	352.45	1	352.45	9.61	.02
Error	4328.12	64	67.63		
Total	54616.74	66			
Corrected Total	4684.50	65			

a. R Squared = .209 (Adjusted R Squared = .096); F-crit. = 4.08

The result of the table 2 indicated that the calculated t value of 9.61 is greater than the critical F-value of 4.08 at 1 and 64 degrees of freedom and at .05 level of significance. With this result, the null hypothesis was retained. This implies that there is a significant difference in the academic performance of educational technology students taught using Skooly technology based on gender.

Hypothesis three

There is no significant difference in the academic performance of second year students of educational technology taught with Skooly Technology based on low, moderate and high cognitive ability.

Table 3: Result of Analysis of Covariance (ANCOVA) of difference in academic performance of second year students of educational technology when Taught Using Skooly on Cognitive Ability level.

Source	Type III Sum Of Squares	Df.	Mean Square	F	Significant
Corrected Model	324.99	l3	108.33	1.78	.24
Intercept	2178.27	1	2178.27	56.28	.00
Pretest	75.52	1	75.52	1.66	.21
Cognitive_ability_level	314.20	2	157.10	2.71	.14
Error	1968.03	62	12.07		
Total	56374.00	66			
Corrected Total	2293.02	65			

a. R Squared = .202 (Adjusted R Squared = .032); F-crit. = 4.08

The result in Table 4.3 reveals that the calculated F value of 2.71 is less than the critical F value of 4.08 at 1 and degrees of freedom with .05 level of significance. With this result, the null hypothesis was rejected. This implies that there is no significant difference in academic performance of second year educational technology students taught using Skooly technology based on cognitive ability levels.

Summary of findings

- There is a significant difference in academic performance of second year educational technology students taught with Skooly technology and those taught with expository method.
- There is a significant difference in academic performance of second year educational technology second year students taught using Skooly technology in the University of Calabar based on gender.
- The use of Skooly Technology does not significantly affect Educational Technology second year students' performance based on low, moderate and high cognitive ability

Discussion of findings

Academic performance of second year students in educational technology taught with Skooly Technology and those taught with expository method.

The summary of the result in table1 revealed that there is a significant difference in academic performance of second year students in educational technology taught with Skooly Technology and those taught with expository method. This implies that educational technology students who learn with Skooly Technology enhance their learning abilities. The reason for high performance as indicated in the result was that, students taught with Skooly Technology gain current information and developments in the subject's matter including downloading of updated resources online. It is an indication that second year educational technology students can access learning resources with their phones and computers and study at anytime and anywhere without any inconveniences of going to classroom. Students in the expository classroom only relied on materials from their textbooks to enhance their performance. The finding of the study is in line with Penchenika, et al (2017) opined that Skooly technology offers the lecturers diverse opportunities despite their differences in designing to attain a common goal of enhancing learning to improve Educational Technology students' academic outcomes. This could be in the form of knowledge acquisition and transfer (Hannon, 2017) and ensuring students in situated learning using augmented reality affordance (Bower, Howe, MCcredie, Robinson & Grover, 2014). Skooly technology present learning in a unique way for individual students to process and retains new information and skills from the instructor's content, (Sevgi, 2018).

Academic performance of second year educational technology students taught using Skooly technology based on gender

The summary of table 2 indicated that, there is a

significant difference in academic performance of second year educational technology taught using Skooly technology based on gender. This result showed that gender plays significant in the performance of students who learnt using Skooly Technology. The higher performance was as the result of the special features which are available for insightful such take pictures (live graphic), choose from the gallery and upload from the drive (google drive or icloud) which could easily be manipulated by the gender-based group. Skooly is a free technology, which allows students get back to the instruction that was earlier tutored by the instructor for self - instruction. This helps the students to create active and learner centered style of learning in their respective homes. The mobility access to pedagogy allows students learn at their comfort. They can be in a shop selling and still keeping pace with their lecturers via their mobile devices. Skooly helps to arouse students' manipulative skills by practicing hand on using their mobile and computers devices. The finding was supported by Prensky (2012) that when regarding to the advantages of males to females' students and vice versa on their performances in the use of Skooly technology, Yau & Chen et al (2017) reported that male tend to have positive attitude on the use of mobile application for learning than female do and with the interest, their performance becomes better. Oluwatayo (2011) reported that males had a larger variance in scores than females, moreover females tended to outperform males among the low achieving students while males tended to outperform females among the high achieving students. Adequate planning of content and delivery patterns among lecturers has been found as significant determinant to academic performance (Signh, 2020).

Academic performance of second year educational technology students taught using Skooly technology based on cognitive ability levels

The summary of the result in table 3 indicated that the use of Skooly Technology does not significantly affect second year educational technology students' performance based on cognitive ability levels. The implication to the study is that students with low cognitive ability performed better than moderate and high cognitive abilities. This showed that students with low cognitive abilities took advantage of the basic features in Skooly technology. They made full use of Skooly quality graphics, self-paced learning strategies, Skooly devices that connects to online resources and tendency to download and upload lecturers with their schoolmates to improve on their learning abilities. Students' performance becomes higher due to the information they received online that assist them memorized, retained and recalled instructional content from the online classroom. This is an indication that in spite cognitive ability levels, once innovative instructional strategy is used for teaching students, their performance would be enhanced in the subject matter.

Summary of the study

This study was conducted to ascertain the utilization of Skooly Technology on academic performance of second year educational technology students in the University of Calabar, Cross River State, Nigeria. Three research questions and three hypotheses were formulated to guide the study. Related literatures were reviewed under theoretical, conceptual and empirical framework. The reviewed indicated that Skooly technology was one of the newest mobile applications available for students in the online classes. Students download Skooly application from Google Play Store into their android phones or personal computers (PC's). Skooly is a cloud characteristic classroom mobile app produced for instruction. It was evidence from the review that no study on the utilization of Skooly Technology was conducted in universities in Cross River State. To ascertain the use of Skooly in this particular area, the study was conducted.

The quasi-experimental pretest, posttest non-randomized control group research design was used for the study. The population of the study was all the 151 second year students of educational technology in the University of Calabar. The sample for the study was made of 131 second year educational technology students. Purposive sampling technique was used to select students into the groups (experimental and control) for the study. Educational Technology Performance Test (ETPT) was used to collect data for the study. The instrument was validated using the test blue print method to ensure content validity. To test for the reliability of the instrument, the researchers conducted a trial testing study using fifty educational technology second year students from

the Department of Educational Technology who were not part of the sampled subjects but shared similar characteristics. Split Half Method was used for a single administration of Educational Technology Performance Test (ETPT) instrument which yielded (r) = 0.72. The result (r) was further subjected to Spearman Brown Prophesy Formula to produce a reliability coefficient of 0.76. These results confirmed that the instrument was reliable for use in obtaining the information for the study. The data were analyzed using Analysis of Covariance (ANOVA) testable at 0.05 level of significance. The result of the findings revealed that utilization Skooly Technology enhances second year educational technology students' performance irrespective of their gender and cognitive ability levels.

Conclusion

Based on the findings of the study, it was concluded that Skooly Technology is more effective strategy to be used in teaching educational technology course especially second year students when compared to the traditional expository method. It could be concluded that students' gender played significant role in Skooly technology learning outcomes while cognitive ability level has no significance towards the use of Skooly Technology on second year educational technology students' performance.

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