The Influence of Educational Mobile Apps Use on Teaching Effectiveness of Lecturers in Public Polytechnics in Ekiti and Ondo states, Nigeria.

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Abstract: **The quality of teaching being imparted to students is supposed to be of high quality and effective in this information superhighway age. Teaching effectiveness typified with teaching methodologies, classroom management, assessment procedures and content knowledge is of great unease to any tertiary education institution since it furthers the productivity of the institution. In tertiary institutions, like public polytechnics in Ekiti and Ondo states, teaching effectiveness seems to be of poor quality because of students' low capacity to analytically think, poor lecturers proficiency. Educational mobile apps use can further the teaching effectiveness in any institution of higher learning. Therefore, this study investigated the influence of educational mobile apps use on teaching effectiveness of lecturers in public polytechnics in Ekiti and Ondo States, Nigeria.**

The study used survey research design. The population of the study consisted of 116 lecturers and 1,978 students in the three public polytechnics in Ekiti and Ondo states. The lecturers were all enumerated to participate, while Taro Yamane was used to select 333 students' participants and multistage sampling was used to select the participants from the various faculties, departments and levels. A self-structured validated, and reliable questionnaire was used to gather data. The data collected were analyzed with the use of descriptive statistics, and linear regression.

Findings showed that the most used educational mobile apps was Google Apps for education (GAFE) with a mean score of ($\bar{x}$=1.64).The result also indicated that there was a weak positive but not significant influence of educational mobile apps use on the teaching effectiveness in public polytechnics in Ekiti and Ondo State, (β=0.027, t = 0.270, *p-value*>0.05).

The study concluded that educational mobile apps use contributes to teaching effectiveness of lecturers in public polytechnics in Ekiti and Ondo states, Nigeria. It was therefore recommended that the government of Nigeria, through the ministry in charge of education, and National Board for Technical Examinations (NBTE) should carry out continuous awareness program and training for lecturers in public polytechnics on the use of educational mobile apps.

***Key Words*: Educational Mobile Apps, lecturers, Teaching Effectiveness. Ekiti, Ondo States.**

I. INTRODUCTION

Nations across the globe struggles towards improving the value of the teaching in their tertiary education institutions of learning. Lecturers are a very important elements in any tertiary institution of learning including public polytechnics. All over the world, lecturers carry out some major activities which involves; teaching, students' academic improvement, enhancement of the development of society (1). In the opinion of (2) teaching is the act of a teacher playing a role of building the students interests towards a course or subject and making them useful in their daily lives. Looking at teaching from the perspective of Nigerian public polytechnics, (3) noted that polytechnic teaching is the form of education set up by the government to cater for the training of professional character in the middle level cadre with more attention placed on the physical and applied sciences, and lesser attention on the business and trade sector.

Polytechnic education is multi-disciplinary and a hands-on field, which is focusses more on imbuing a learner with relevant vocational and functional technical education. Polytechnic education is very vital and fundamental with the roles it plays towards the development of a society, (4). In the same vein, (5) affirms that polytechnic education is very vital to the industrialization of a nation. It is mainly geared towards industrialization. Lecturers performs this important role in the advancement of societies via teaching effectively.

Effective teaching according to (6) is a kind of teaching that is mainly focused on the students, with the goal of all students learning. This is in line with (7) who asserted that a teaching that is effective, must take into consideration, both the educational goals and personal aim of the students. In this case, for teaching to be effective, the learning environment must also be conducive for teaching and learning. The environment must be good enough to inspire the student to learn. This is because, if the students do not comprehend the concept being taught, then the teaching is not effective.

Teaching effectiveness as the dependent variable in this study is measured, using the dimensions of content knowledge,

assessment procedure, teaching methodologies, classroom management, as noted by (8, 9, and 10).

(11) Defines teaching methods as the processes or group of methods adopted by a lecturer that will make the teaching content easily passed across and understood by the learner. In the opinion of (12) teaching methodologies involves the different ways through which the teacher can pass knowledge across to the students and make the teaching effective. Teaching methodologies should be accompanied with classroom management to attain teaching effectiveness. According to (13) management of classroom is a continuous activity in which the teacher judgment on how to arrange the classroom/how the students will sits, the teaching strategies to use and how control the students from misdemeanor. Classroom Management as explained by (14) is said to imply all the efforts, and arrangement put in place to make the teaching a success. Also, assessment Procedures as opined by (15) is a progressive appraisal style that the teacher or lecturer from time to time employ to check the students level of progress regarding their cognition, attitude, and reasoning with the use of tools like quizzes, projects and examinations. To further underscore the level of importance of assessment procedure to educational process, (16) argued that assessment process should not be the end part in the teaching-learning process, but should be at the core in a continuous manner of the teaching-learning process because it do give teachers and students updates on their level of progress in their teaching and learning. Also, content knowledge according to (17), is said to mean the teachers' deep and vast comprehensive knowledge of the course content to be delivered to the students. Content Knowledge was conceptualized by (18) to be teachers' cognition of the course, comprehension of the act of teaching, and cognition of the syllabus.

Achieving teaching effectiveness in this 21st century without the intense use of educational mobile apps will be very difficult. Therefore, it is very vital for lecturers use educational mobile apps in teaching to a great extent while teaching. In the argument of (19), Coursera is defined educational mobile app as any app made for teaching-learning using mobile devices and is capable of reducing the space that exists between education and technology and also leads to massive improvement in research, governance of educational institutions. Researches and literature on educational mobile apps are still not much yet, therefore, the researchers will be focused on two Educational Mobile Apps on this study. The educational Mobile Apps to be focused on, are; Google Apps for Education (GAFE) and Microsoft Office Team. And in this paper, educational mobile apps will be looked at from two dimensions; Types of educational mobile apps, and level of use.

Firstly: Types Of Educational Mobile Apps: (20) described Microsoft Teams as a cooperative base which infuse keeping of files, video conferencing, SharePoint, instantaneous message exchanges and usage of OneNote, and can also involve other parts of office 365 like Word, PowerPoint, and Excel for the carrying out of educational activities. In their own definition, (21) defined educational mobile apps, using Google App for Education (GAFE) as an example, they said, Google App for Education is a technological instrument built on web 2.0 ideologies mainly for teaching, collaborating and mentoring for social contacts and sharing of ideas In essence GAFE can be grouped among the application and programs for communication and collaborations which is built on web 2.0 that allows design and substitute of ideas. Secondly, Level of Use: (22) affirmed that teachers do go as far as placing tests/quizzes, and projects to the students on each person basis, splinter groups, or the whole class with the assignments features in Microsoft Teams. Continuing, he further said, he also do sets academic task, based on various students capacities and learning pattern using Microsoft Teams. Similarly, (23) argued the teachers do have one of the best interaction with students by using the mobile version of Microsoft team educational apps. This is because, through this version, students do get instantaneous alert on their performance or on other academic activities from the teacher. Teachers/lecturers could go to the level of involving themselves in group projects work in the course of teaching, using Microsoft Team. This is supported by (24) who asserted that lecturers in their course of teaching, created groups, with the lecturer(s) being the leader(s) of the groups, who collaborated online using Microsoft Teams that were assembled with special channels equating to different phases, in doing group academic work involving problem finding, analysis of the problem(s), providing solutions and recommendations.

(25) In their study titled, The Impact of Google Apps at Work: Higher Educational Perspective, in Oman, using quantitative research method. From the overall result of this study, it showed a very close level or rate of usage, between the academic and administrative staff of the services of Google Apps in teaching and administrative job respectively. The results also show slight positive influence of Google Apps on the teaching of the academic staff. Similarly, in a study titled "Google classroom as a tool for active learning", (26) studied the usefulness of educational apps, using Google classroom. The area of the study was Malaysia, and they used survey research design method. They found out that with the use of Google classroom in teaching the students, the students saw the app as easy to use, and were able to use it properly to improve their studies as well as gaining satisfaction. In another study by (21) titled, Fostering Google Apps for Education (GAFE). The study was done in Nigeria, using survey research design. The study revealed that the use of Educational Apps (GAFE) by lecturers will improve teaching and learning. Also, (27) in their study, titled "Comparative Analysis of Microsoft Package (MSP) Competence among Teacher Trainee Students in Botswana and Nigeria: Implications for Curriculum Practices". The area where the study was conducted was Botswana and Nigeria, using survey research design, and whose result revealed that the mostly used Microsoft Package functionalities used were, Microsoft

word, Microsoft Excel, and Microsoft PowerPoint in teaching. In the same vein, (28) study was on "E-Environment Based on Microsoft SharePoint for the Organization of Group Project Work of Students at Higher Education Institutions" in Pakistan, using experimental research design. The study revealed a very high usage of Microsoft SharePoint and Microsoft OneNote in the teaching process by the teachers in their study. In their own study, (29) studied, Use of Google Apps Education to Improve Teachers Competence through Lecturer Community Service, using descriptive survey research design, in Indonesia. The study found that the execution of community service added to the proficiencies of teachers in using Google apps for education. (30) carried out a study on "Lecturers' awareness of, access to and competency in the use of Google apps for education in Nigerian universities" in Nigeria, using descriptive research design. The study revealed that lecturers were aware and had access to GAFE, however, the access is only restricted to their offices. It was also revealed that if the lecturers are allowed the opportunity, they are ready to use GAFE in their teaching. In the study of (31) which was on "Effectiveness of Google classroom: teachers' perceptions", which was done in Pakistan, using qualitative research design. Its results revealed that lecturers perceive Google Apps for Education as a basic classroom management too, but not for effective teaching, and the reason attributed to this, was because most of the teachers don't uses most of the features of the app. In the study of (32) carried out on the title "Supporting 21st-Century Teaching and Learning: The Role of Google Apps for Education (GAFE) in Ghana", using survey research design. And the result showed that lecturers' utilizes the functionalities of Google Apps for Education like, Google mail, and Google slide to teach effective and qualitative lessons to their students**.** (20) study was on Classroom Experiences with Microsoft Team for Foreign Language Teaching. Descriptive survey research design was used, and the study was carried out in United Kingdom. The result of the study revealed that, Using Microsoft Team significantly improved teaching, leading to students' improved academic performances. In a similar vein, (33) study was on the "Impacts of Using Microsoft Word (MS) Software on Iranian EFL Lecturers' Grammar Knowledge", in Iran, using a quasi-experimental research design, the results revealed that lecturers greatly use Microsoft Word, and Microsoft Excel in their teaching.

Statement of the Problem

Teaching is the act of using one's acquired knowledge and experiences to impart knowledge to others. Effective teaching enables the students to efficiently and effectively comprehend what they have been taught by their teacher and uses the knowledge and skills acquired to add value to society. Poor teaching inhibits the capacity of the students to carry out critical thinking, help in finding solutions to problems in their academic field of interest, and ultimately impeding them from contributing to the advancement of their society. It is also noticeable in public polytechnics in Ekiti and Ondo states, Nigeria. This is apparent as it is visible that some students had poor critical thinking capacity, poor ability in the expression of thoughts, and are incapable of finding solutions to challenges in their academic field of study.

According to (34) teaching effectiveness in Colleges of Education, Public Polytechnics in South-West Nigeria is of low quality and shoddy. Also, (35) opined that there is a problem as regards quality and effective teaching in Nigeria's polytechnic educational system in general. Also, they said there is a deficiency in polytechnic lecturers teaching students and how they imbue them with the needed skills to tackle poverty in Nigeria. The researchers also observed that the lecturers in the schools were not using educational mobile apps in teaching and this could be that they have low skill levels in using them. This is supported by (36) who argued in their study that lecturers had a low level of ICT skills which leads to their low level of computer technology and educational mobile apps integration in their teaching processes.

Also, the reasons for the low usage of the educational mobile apps by the lecturers could be due to erratic power supply in the schools, and lecturers' poor attitude towards educational mobile apps in teaching. This is supported by (31) whose study argued that lecturers' attitudes toward the perceived the use of Google Classroom app as for only administrative duties, and not for teaching. It is based on these that this study seeks to find out the influence of educational mobile apps use on lecturers teaching effectiveness in public polytechnics in Ekiti and Ondo States, Nigeria.

Objective of the Study.

The main objective of this study is to investigate the influence of educational mobile apps use on lecturers teaching effectiveness in public polytechnics in Ekiti and Ondo states, Nigeria.

The specific objective is to:

1. Find out the various types of educational apps being used by lecturers in public polytechnics in Ekiti and Ondo states.
2. Ascertain the level of educational mobile app use among lecturers in public polytechnics in Ekiti and Ondo states.

Research Questions.

1. What are the types of educational mobile apps being used by lecturers in public polytechnics in Ekiti and Ondo states?
2. What are the level of educational Mobile Apps Use by lecturers in public polytechnics in Ekiti and Ondo states?

Research Hypotheses

1. Educational mobile apps use will not significantly influence teaching effectiveness of lecturers in public polytechnics in Ekiti and Ondo states.

II. RESEARCH METHODOLOGY

Research Design

The research design for this study was survey research design. This type of research is defined as an organized way of collecting information from a small group (sample) so as to build quantitative signifiers of the features of the bigger group (population), in which the small group are also part of, (36**).** The population of the study consist of 116 lecturers, and 1,978 students totaling 2,094, from the three public polytechnics in Ekiti and Ondo states, Nigeria. The sample size for the study was four hundred and forty-nine respondents, comprising three hundred and thirty-three (333) students, and one hundred and sixteen (116) lecturers. Which was gotten using Taro Yamane formula. In order to determine the faculties, departments, and levels where to administered the self-structured questionnaire, multistage sampling techniques, which includes, purposive sampling technique, systematic random sampling technique, proportional stratified random sampling technique and convenience sampling technique was used by the researchers.

III. RESULTS

Data Presentation and Analysis of Research Questions and Hypothesis

This section is focused on the analysis of the research questions and hypothesis.

*Research Question one***:** What are the types of educational mobile apps being used by lecturers in public polytechnics in Ekiti and Ondo states?

Table 1 showed the analysis of the types of educational mobile apps being used by lecturers of public polytechnics in Ekiti and Ondo states, Nigeria which are presented in frequency, percentage, mean and standard deviation formats, using the (Yes) and (No) answer format.

Table 4.2.2: Descriptive Analysis on Various Education Apps Use among Lecturers

	Yes		No		Total	
	Frequency	Percentage %	Frequency	Percentage %	Mean	Standard Deviation
Google Apps for Education (Mean = 1.64, SD = 0.39)						
Google Classroom	19	17.92%	87	82.08%	1.82	.39
Google Meet	18	16.98%	88	83.02%	1.83	.38
Google Mail	96	90.57%	10	9.43%	1.09	.29
Google Doc	50	47.17%	56	52.83%	1.53	.50
Google Slide	30	28.30%	76	71.70%	1.72	.45
Google Sheet	11	10.38%	95	89.62%	1.90	.31
	Yes		No			
	Frequency	Percentage %	Frequency	Percentage %	Mean	Standard Deviation
Microsoft Team (Mean = 1.57, SD = 0.27)						
Microsoft Word	105	99.06%	1	0.94%	1.01	.10
Microsoft Excel	100	94.34%	6	5.66%	1.06	.23
Microsoft PowerPoint	102	96.23%	4	3.77%	1.04	.19
Microdoft Outlook	17	16.04%	89	83.96%	1.84	.37
Microsoft SharePoint	9	8.49%	97	91.51%	1.92	.28
Microsoft OneNote	7	6.60%	99	93.40%	1.93	.25
Microsoft Meet	9	8.49%	97	91.51%	1.92	.28
Edmodo	10	9.43%	96	90.57%	1.91	.29
Skye	14	13.21%	92	86.79%	1.87	.34
Zoom	84	79.25%	22	20.75%	1.21	.41

Source: Field Survey Results, 2021

Table 1 indicated that on the overall, Google Apps for Education is the most used types of educational mobile application being used by lecturers in public polytechnics in Ekiti and Ondo states, Nigeria ($\bar{x}$=1.64), and Google mail with 90.57%, and Google docs with 47.17% used rate being the most used functionalities in Google Apps for Education.

Followed by Microsoft Team with an average mean score of ($\bar{x}$=1.57), with Microsoft word having 99.06% used rate, and Microsoft PowerPoint having 96.23% used rate, while Microsoft excel having 94.34%. This implies that Google mail, Google docs, Microsoft word, Microsoft PowerPoint and Microsoft excel are the functionalities in Google Apps for Education, and Microsoft Team that lecturers in Public polytechnics in Ekiti and Ondo states, Nigeria uses the most.

Table 2 showed the analysis of the level of educational mobile app use among lecturers in public polytechnics in Ekiti and Ondo states, Nigeria which are presented in frequency, percentage, mean and standard deviation formats, using very high level (5), high level 4, moderate level (3), low level (2) and very low level (1) rating scale.

Table 4: Descriptive Analysis on the level of educational mobile app use among lecturers

	Very High Level	High Level	Moderately Low	Low Level	Very Low Level	Mean	SD
Microsoft Team (Mean = 2.13, SD = 0.89)							
Microsoft Word	40	48	18	0	0	4.21	0.71
	37.74%	45.28%	16.98%	0.00%	0.00%		
Microsoft Excel	13	30	21	37	5	3.08	1.15
	12.26%	28.30%	19.81%	34.91%	4.72%		
Microsoft PowerPoint	16	43	28	15	4	3.49	1.04
	15.09%	40.57%	26.42%	14.15%	3.77%		
Microsoft Outlook	1	6	5	11	83	1.41	0.89
	0.94%	5.66%	4.72%	10.38%	78.30%		
Microsoft SharePoint	0	3	6	5	92	1.25	0.69
	0.00%	2.83%	5.66%	4.72%	86.79%		
Microsoft OneNote	1	2	6	3	94	1.24	0.72
	0.94%	1.89%	5.66%	2.83%	88.68%		
Microsoft Meet	1	3	5	4	93	1.25	0.76
	0.94%	2.83%	4.72%	3.77%	87.74%		
Edmodo	1	7	1	9	88	1.34	0.87
	0.94%	6.60%	0.94%	8.49%	83.02%		
Skye	3	8	2	8	85	1.45	1.04
	2.83%	7.55%	1.89%	7.55%	80.19%		
Zoom	7	10	31	43	15	2.54 6.60%	1.06 9.43%
	6.60%	9.43%	29.25%	40.57%	14.15%		
Google Apps for Education (Mean = 1.75, SD = 0.91)							
Google Classroom	3	6	5	2	90	1.40	1.01
	2.83%	5.66%	4.72%	1.89%	84.91%		
Google Meet	2	2	7	7	88	1.33	0.84
	1.89%	1.89%	6.60%	6.60%	83.02%		
Google Mail	11	27	39	25	4	3.15	1.02
	10.38%	25.47%	36.79%	23.58%	3.77%		
Google Doc	1	6	9	41	49	1.76	0.90
	0.94%	5.66%	8.49%	38.68%	46.23%		
Google Slide	2	4	6	26	68	1.55	0.91
	1.89%	3.77%	5.66%	24.53%	64.15%		
Google Sheet	0	5	4	7	90	1.28	0.75
	0.00%	4.72%	3.77%	6.60%	84.91%		

Source: Field Survey 2021

KEY: ***Decision Rule if mean is less or equal to 1.49=Very Low; 1.5 to 2.49 = Low; 2.5 to 3.49 =Moderate; 3.5 to 4.9= High and 4.5 and above = Very High.

Table 4.2.4 indicated a low the level of Educational Mobile Apps Use by lecturers in public polytechnics in Ekiti and Ondo states, Nigeria with Microsoft Team level of use having a mean score of $\bar{x}$=2.13). This implies that lecturers in public polytechnics in Ekiti and Ondo states, Nigeria have low use level of Educational Mobile Apps which includes; Microsoft Word, Microsoft excel, Microsoft PowerPoint, Microsoft outlook, Microsoft SharePoint, and Microsoft meet. Specifically, the result revealed ($\bar{x}$=4.21) for Microsoft word, Microsoft PowerPoint ($\bar{x}$=3.49), Microsoft excel ($\bar{x}$=3.08). This implies that the participants make use of these functionalities like Microsoft word, Microsoft excel, and Microsoft PowerPoint to a greater level in the course of the teaching learning process, than they use the other functionalities.

The result also indicated a low level use of Educational Mobile Apps Use by lecturers in public polytechnics in Ekiti and Ondo states, Nigeria with Google Apps for Education level of use having a mean score of ($\bar{x}$=1.75). This implies that lecturers in public polytechnics in Ekiti and Ondo states, Nigeria have low use level of Educational Mobile Apps which includes Google classroom, Google meet, Google mail, Google doc, Google slide and Google sheet. Specifically, the result revealed ($\bar{x}$=3.15) for Google mail, Google Doc ($\bar{x}$=1.76), Google Slide ($\bar{x}$=1.55). This means that the participants make use of Google mail, Google Doc, and Google Slide functionalities to a greater level than the other functionalities.

$H_0$1: Educational mobile apps use will not significantly influence teaching effectiveness of lecturers in public polytechnics in Ekiti and Ondo states.

The table below presented the regression analysis of hypothesis two that says educational mobile apps use will not significantly influence lecturers teaching effectiveness in public polytechnics in Ekiti and Ondo states, Nigeria.

Table 3: Regression Analysis on the Influence of Educational Mobile apps use and teaching effectiveness

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	61.656	5.726		10.768	.000
	EDUCATIONAL MOBILE APPS	.027	.099	.027	.270	.788
a. Dependent Variable: TEACHING EFFECTIVENESS						
R = 027[a] R^2 =.001 Adjusted R^2 = -.009 F = .073						

Table 4.3.2 shows the simple regression analysis result for the effect of educational mobile apps use will not significantly influence teaching effectiveness of lecturers in public polytechnics in Ekiti and Ondo states. The independent variable of educational mobile apps use was regressed against teaching effectiveness using simple linear regression analysis. The result revealed that educational mobile apps (β=0.027, t = 0.270, p>0.05) has a weak positive but not significant influence on the teaching effectiveness in public polytechnics in Ekiti and Ondo State. The F-test is 0.073. This shows that there is sufficient evidence to substantiate the model's usefulness in predicting teaching effectiveness. The R^2 is the coefficient of determination which explains the variation in the dependent variable due to changes in the independent variable. The R^2 value also indicates the effect size. The R^2 (0.001) of the regression model indicates that 1% of the variation in teaching effectiveness is explained by educational mobile apps use by the public polytechnics lecturers in Ekiti and Ondo State. Therefore, the null hypothesis was accepted. Although the findings suggest that educational mobile apps contribute to the teaching effectiveness of public polytechnics in Ekiti and Ondo State in Nigeria. It is evident from this finding that the insights of teaching effectiveness of public polytechnics in Ekiti and Ondo State depend on educational mobile apps.

IV. DISCUSSION OF FINDINGS.

The study focused on the influence of educational mobile apps use on teaching effectiveness of lecturers in public polytechnics in Ekiti and Ondo states, Nigeria. This section is on the findings of this study and the discussion of the findings in tandem with previous studies.

The research question one set out to find out the types of educational mobile apps being used in the public polytechnics in Ekiti and Ondo States. The result showed that majority of the respondents used more of Microsoft word, Microsoft excel, Microsoft PowerPoint, and Google mail the most in their teaching process. This supports (20) study which affirmed that lecturers uses more of Microsoft word, Excels and Microsoft Team while teaching.

The result from this study also revealed generally that the lecturers are not familiar with most Google Apps for Education functionalities as indicated by the overall average mean ($\bar{x}$=1.64). Just as they generally have low familiarity with most of the functionalities of Microsoft Team for Education as indicated by the average mean ($\bar{x}$=1.57). This is supported by (31) that revealed that lecturers perceive Google Apps for Education as a basic classroom management too, but not for effective teaching, and the reason attributed to this, was because most of the teachers don't uses most of the

features of the app. (27) also supported this with their study which affirmed that the Microsoft Package functionalities that teachers uses the most in the teaching process are Microsoft Word, Microsoft Excel and Microsoft Power point.

This research question two sought to find out the level of educational mobile apps use by lecturers in public polytechnics in Ekiti and Ondo states. The results from this study showed that lecturers usage level of Microsoft Word ($\bar{x}$=4.21), Microsoft Excel ($\bar{x}$=3.08), Microsoft PowerPoint ($\bar{x}$=3.49) in teaching is high based on the decision rule. This is supported by the study of (32) whose results revealed that lecturers greatly uses Microsoft Word, and Microsoft Excel in their teaching. The result also revealed the mean score for Microsoft Outlook ($\bar{x}$=1.41), Microsoft SharePoint ($\bar{x}$=1.25), which means low usage based on the decision rule. This result does not align with the study of (28) which revealed a very high usage of Microsoft SharePoint and Microsoft OneNote in the teaching process by the teachers used in their study.

The study also reveals the results on Google Apps for Education with an average mean of ($\bar{x}$=1.75). The responses on Google Apps for Education were: Google Mail ($\bar{x}$=3.15), Google Doc ($\bar{x}$=1.76), Google Slide ($\bar{x}$=1.55). The result is in line with the findings of the study of Awuah, (2013) which showed that lecturers utilize the functionalities of Google Apps for Education like, Google mail, and Google slide to teach effective and qualitative lessons to their students**.**

The result from the Research Hypothesis one revealed that educational mobile apps (β=0.027, t = 0.270, p>0.05) has a weak positive but not significant influence on the teaching effectiveness in public polytechnics in Ekiti and Ondo State. This results is in agreement with the study of (25) which showed a very slight positive influence of Google Apps on the teaching of the academic staff used as respondents in their study. This is contrary to (20) study which opined that usage of mainly Microsoft Excel, Microsoft Word, and Microsoft Power point greatly or significantly influenced teaching.

The result is also supported by (30) study which opined that usage of Google Apps by the lecturers in his study will positively influenced their teaching. The result also supports the study of (29) whose results showed that lecturers carrying out of community service increased their skills and usage of Google Apps for Education and also in a very weakly positive way influenced their academic job Finally, the result also agree with the findings of the study of (31) which affirmed that teachers perceives Google Classroom App as just an instrument useful for mere class coordination and facilitation with no significant impact on teaching methodologies and quality in general.

V. RECOMMENDATIONS

The findings of this study necessitated the following recommendations:

1. The government of Nigeria, via the ministry of education, and the administrative body in charge of polytechnic education (National Board for Technical Examinations, NBTE) should carry out awareness programs and training for lecturers on the use of educational mobile apps, and its benefits in improving and sustaining teaching effectiveness in this 21st century.
2. Lecturers in public polytechnics in Ekiti and Ondo states should put in extra work, maybe through private and personal training to acquire much knowledge in the use of educational mobile apps, and how to properly integrate these apps in their teaching.
3. The various heads of public polytechnics in Ekiti, Ondo states and Nigeria at large should ensure the provision of various educational mobile apps, and requisite ICT facilities in their institutions for use by their lecturers.

VI. CONCLUSION

The study established that educational mobile apps use contribute to teaching effectiveness in public polytechnics in Ekiti and Ondo States. The study concluded that teaching effectiveness depends on educational mobile apps use by lecturers in public polytechnics in Ekiti and Ondo states, Nigeria. Statistically, the study also revealed that educational mobile apps use have positive but not significant influence on teaching effectiveness of lecturers in public polytechnics in Ekiti and Ondo States, Nigeria.

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