SURVEY OF PRE-SERVICE TEACHERS' PERCEPTION OF SOCRATIVE APPLICATION IN ONLINE FORMATIVE ASSESSMENT IN EDUCATIONAL TECHNOLOGY DEPARTMENT, IN THE UNIVERSITY OF ILORIN, NIGERIA

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Abstract

This paper employed the descriptive survey design type to evaluate pre-service teachers' opinion on the use of Socrative application in online formative assessment of students in the Educational Technology Department in the University of Ilorin. The sample for the study is all the 300 and 400 level pre-service teachers made up of 201 males and 158 females in the 2018/2019 academic session who partook in the experimental study. Data was collected using an adapted instrument from Onasanya, Otemuyiwa and Onasanya (2019) tagged, Questionnaire on Pre-service Teachers' Perception of Socrative (QPTPS) The instrument was face validated by 3 lecturers from the department; their comments and observations were used to modify the instrument. The instrument was pilot tested with 40 students. To determine the reliability coefficient, Cronbach Aplha was employed. It yielded .76, .78, .83 and .87 values in sections 'A', 'B', 'C' and 'D'. The instrument was designed following four points weight Likert rating: Strongly Disagree (SD) – 1 point; Disagree (D) – 2 points; Agree (A) – 3 points and Strongly Agree (SA) – 4 points. Google form was employed in administering the questionnaire to the participants through https://bit.ly/2nefmWX, a link that was ealier generated by cropping the instrument. The participants accessed it via their browsers. The return rate was 96.9 %, which is 348 of the 359 respondents. Data collected was analysed using frequency counts, percentages and a mean set value of 2.50 as "agree or accept" to answer the research questions. Independent t-test was used to test the two hypotheses that guided the study. Results from the study showed that Socrative application was easy to use, efficient and gender-friendly in online formative assessment. It was recommended that Socrative application should be employed in the conduct of online formative assessment, especially for pre-service teachers in educational programmes.

Keywords: Online Formative Assessment, Socrative Application and Pre-Service Teachers' Perception

Introduction

Online learning is an educational programme that is conducted outside the orthodox classroom. It is a type of learning fashioned for learners with different attributes like age, race and gender. This is to afford the learners the opportunity to be educated outside the four walls of the classroom. Online educational programmes have enabled many people who ordinarily would not have attended school to be educated as learning takes place irrespective of distance or location. Katkukah and Okoyefi (2018) defined online learning as an educational procedure involving all or most of the teaching activities performed by someone not physically present with the learners, to the point that almost all the communication among the teachers and the learners are by simulated medium which can either be electronic or print.

Online learning has made it possible for learning to be learners-centred, learners-paced. It takes place via networking which allows for interaction between the teachers and the learners without face to face contact. Learning in this type of environment is conveyed to the learners via mail, internet, telephone, television, satellite, microwave, and radio. Teaching and learning, irrespective of where it is held cannot be said to have taken place without assessing the learners for feedback.

Assessment can be defined as testing learners for the purpose of feedback which would enable the teachers to measure the level of learners' understanding along with the set objectives for the educational programme. CETIN (2018) sees assessment as the last thing to do during the process of teaching-learning to establish the level of attainment on the part of the teachers and the students in line with set objectives. Assessment can be formative or summative. Formative assessment refers to examining learners while the process of teaching and learning last, while summative assessment is the examination or test conducted at the end of an academic programme to determine learners' final achievement in a course or programme.

Formative assessment in online learning affords the teacher the opportunity to know the students that need assistance and the area where assistance is needed. The assessment does not wait till the end of a programme; it is conducted alongside teaching and learning. It often results from the feedback from digital assessment tools like socrative, kahoot!, plickers, classmaker, schoology, edulastic, quizalize applications. The effect of these applications leads to formative assessment for learning.

One of the purposes of assessment and evaluation is to appraise teaching, stimulate learning and encourage optimal individual development. For teachers to be well informed, assessment and evaluation must bean on-going process. It is one continuous cycle of collecting, interpreting, reporting information and making an application for teaching from the feedback that is obtained (Lawton, Vye, Bransford, Bransford, Sanders, Richey & Stephens, 2012). Feedback is essential in formative assessment; it

involves a detailed content of what is being studied than just the score obtained by a learner. It digs deep to the extent of a learner's expected standard.

ICTpromotes active teacher-student interaction and continuous follow-up of students'progress. Some of the most popular applications are the Students' Response Systems (SRS). These are electronic tools that educators use in asking questions during classes. Socrative application is an online application that is free and user-friendly. It enables students to respond to enquiries posed by their teachers through the use of tools linked to the netsuch as smart phone and laptops (Tirlea, Muir, Huynh, & Elphinstone, 2018).

Socrative assessment application provides learners with the prospects of increasing their classroom interactions . It helps teachers and learners alike in assessing teaching-learning and the progress made . Socrative software used within the classroom illustrates the enablement of extraordinary rank knowledge, top-level skills, and real-world applications which are particularly relevant to individual learning to allow for universal inclusivity within the constructs of teaching, learning, and assessment

Socrative application allows teachers to write tests and use other instruments to focus on specific areas and create discussion among students. One of the benefits of this application is that it is easily accessed and simple to apply using ICT tools. Its use requires that an educator be registered on a website free of charge. Instructors log on to their accounts through their emails and generate their 'virtual classrooms' with an identified code.

O'Keeffe, (2012) highlighted some of the advantages of using the Socrative application to include assisting students to complete tasks using a format within a given time limit students can complete assignments and quizzes at their own speed. Elmahdi, Al-Hattami and Fawzi (2018), that usage of plickers application in teaching and learning generated an active and stimulating setting which assisted learning and promoted students' academic achievements. Likewise, Fátima and Ana, (2019) carried out a research on Socrative application in higher education which result found that students welcomed the use of Socrative application and that its combination with gami?cation approaches would increase pre-service teachers'satisfaction and perception.

Students had no difficulty accessing this application from personal computers and mobile phones. Tirlea, Muir, Huynh, and Elphinstone, (2018) conducted qualitative research study to investigate the use of Socrative application for promoting classroom interaction and discovered that students appreciated Socrativeuse as it created exciting traditional lessons. The study further revealed that students' engagement with the use of socrative application to improve their learning activities. Sarwar and Hosseinian-Far, (2017) also found that Socrative application was a useful and informative learning tool for classroom teaching environments. Students who were quiet in class were able to make more meaningful contributions to the teaching sessions. Pede (2017) reported that

the Kahoot! improved the language of assessment scores, focus and task behaviour of learners. Ren and Wagner (2016) noted that Kahoot! application provides a lively and peaceful environment and assists students in improving their performance.

Pre-service teachers' perception refers to the students' opinion about an issue which may be positive or negative. Samuel, Onasanya and Olumorin (2018) reported that lecturers in the university had a positive perception about the effectiveness, simplicity and competence of mobile technologies. The pre-service teachers' perception would be analysed from gender perspectives to determine if both male and female would perceive the Socrative application the same way. Studies on gender perceptions of ICT and ICT related topics Kehinde and Salami (2018), Utoware and Agbonaye (2018), and Olayinka and Joshua (2018) show that gender did not significantly influence the respondents' perception. However, Usman, Orji and Sule (2018) found that gender influenced the perception of the lecturers.

Information and Communication Technology tools have much to contribute to the teaching and learning process, especially in the conduct of online formative assessment. Irving, (2015) asserted that modern formative assessment tools enhance the teaching and learning process which also assists teachers in evaluating learning and provides instruments to bring out details about students' performance in teaching. CETIN (2018) reported that digital assessment tools produce prompt responses for the teachers' necessary action and allows independent or cluster assessments in a lively and competitive enrivonment. Online educational programmes are becoming house-hold programmes that enable learners to become educated enough to meet up with the demands of the 21st century. For educational programme to be said to have taken place, there must be assessment to determine the performance of both the educators and the learners. Time and distance is are longer a problem in online education programmes. The process of examining or assessing learners in online programmes can be aided by the use of an educational technology tool like Socrative application.

This study is therefore designed to determine pre-service teachers' opinions and views on socrative application as an online formative assessment tool in the conduct of online formative assessment in the Department of Educational Technology, University of Ilorin, Nigeria.

Specifically, the study sought to:

i.   find out the views of the respondents on the ease of use of socrative application in online formative assessment in the Department of Educational Technology of the University of Ilorin;

ii.   find out the opinion of the respondents on the efficiency of Socrative application in online formative assessment in the Department of Educational Technology of the University of Ilorin;

iii. investigate the effectiveness of Socrative application in online formative assessment as perceived by the respondents in the Department of Educational Technology of the University of Ilorin;

iv. examine if there are difficulties faced by the respondents in the use of Socrative application in online formative assessment in the Department of Educational Technology of the University of Ilorin;

v. determine the differences in the respondents' perception of the ease of using Socrative application for formative assessment in the Department of Educational Technology of the University of Ilorin based on gender;

vi. investigate the influence of the respondents' gender on how they perceived the effectiveness of the application in online formative assessment in the Department of Educational Technology of the Universsity of Ilorin.

Research Questions

1. What is the perception of the respondents on the ease of using Socrative application in online formative assessment in theEducational Technology Department, University of Ilorin?

2. How do the respondents view the efficiency of Socrative application in online formative assessment in the Educational Technology Departmentof the University of Ilorin?

3. What is the effectiveness of Socrative application in online formative assessment as observed by respondents in the Educational Technology Departmentof the University of Ilorin?

4. Are there difficulties faced by the respondents in using Socrative application in online formative assessment in Educational Technology Department of the University of Ilorin?

Research Hypotheses

Ho_1:   Respondents' mean score on the perceived ease of use of Socrative application in online formative assessment in the Department of Educational Technology of the University of Ilorin will not differ significantly based on gender.

Ho_2:   Respondents' gender will not influence their responses on the effectiveness of Socrative application in online formative assessment in the Department of Educational Technology of the University of Ilorin.

Methods

The research design employed for the study was descriptive survey type to evaluate pre-service teachers' perception on the usage of Socrative application in online formative assessment in the Department of Educational Technology of the University of Ilorin. Population for this study was all the students of the Educational Technology Department of the University of Ilorin in the 2018/2019 academic session. The sample for the study is all 300 and 400 level pre-service teachers made up of 201 males and 158 females who had participated in the experiment. The pre-service teachers had not heard of or used the Socrative application before this experiment was introduced to the platform by the researchers; the students were introduced to the Socrative application by the researchers. The class was created by the researchers and titled "Pre-service Teachers Perception" via www.socrative.com.The researchers selected the option of a teacher and entered an email address and password. A code (ATTAH7475) was automatically generated for the class and sent to the students to enable them to have access and join the class. The pre-service teachers accessed and joined the class via www.socrative.com. They selected the option of 'I am a student", entered the class code (ATTAH7475) and joined the class automatically. The pre-service teachers individually became members of the class and had access to every material disseminated via the platform. The researchers loaded questions to the platform which the participants responded to.

The instrument used for data collection was adapted from Onasanya, Otemuyiwa and Onasanya (2019) and was titled: "Questionnaire on Pre-service Teachers' Perception of Socrative (QPTPS)". The face validation of the instrument was done by three (3) lecturers of the department of educational technology. Their contributions and observations were used for the modification of the instrument. Cronbach Alpha was employed to determine the following reliability coefficient of the instrument and it yielded .76, .78, .83 and .87 values for sections A, B, C, and D respectively. The instrument was structured following the four Likert rating: Strongly Disagree (SD) – 1 point; Disagree (D) – 2 points; Agree (A) – 3 points and Strongly Agree (SA) – 4 points. The instrument was administered on the participants though 'Google form' which the participants accessed through the link,https://bit.ly/2nefmWX. The respondents were requested to access the instrument via their browsers. 348 of the responses (96.9%)was used for the study. Frequency counts, percentages and an average value of 2.50 was used to answer the research questions. Independent t-test was used to analyse the two hypotheses. SPSS version 20 was used for the analysis.

Results

Figure 1: Demographic Information of Respondents
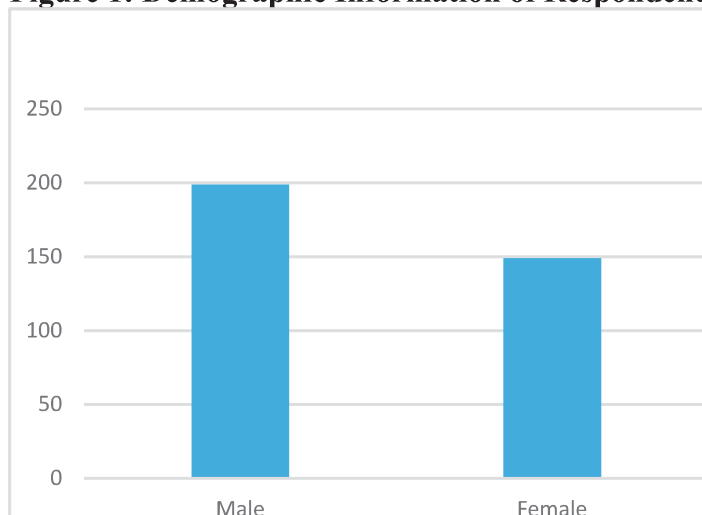
Research Question 1:

What is the perception of the respondents on the ease of using Socrative application in online formative assessment in Educational Technology Department, University of Ilorin?

Table 1: Perception of the Respondents on the Ease of Use of Socrative application in Online Formative Assessment in Educational Technology Department, University of Ilorin

S/N	Items	Mean	Decision
1	Accessing Socrative application environment was easy.	3.48	**Accept**
2	It was easy to use mobile device to access Socrative application.	3.48	**Accept**
3	Socrative application was easy to use.	3.42	**Accept**
4	I did not need assistance in using Socrative application.	3.47	**Accept**
5	The Socrative application has functions that are well integrated.	3.43	**Accept**
6	I did not need assistance before accessing the Socrative application environment.	3.51	**Accept**
	Grand Mean	**3.47**	**Accept**

Table 1 presents the perception of the respondents on the ease of use of Socretative application in online formative assessment in the Educational Technology Department, University of Ilorin. The mean scores ranged between 3.42 and 3.51 with a grand mean of 3.47 that is above the set mean value of 2.50. This implies that the respondents accepted that the application was easy to use.

Research Question 2:

How do the respondents view the efficiency of Socrative application in online formative assessment in Educational Technology Department, University of Ilorin?

Table 2: Pre-service Teachers' View on the Efficiency of Socrative application in Online Formative Assessment in Educational Technology Department, University of Ilorin

S/N	Items	Mean	Decision
7	I am very confident using Socrative application.	3.40	Accept
8	I prefer the use of Socrative application for students online.	3.31	Accept
9	Socrative application aids time management by displaying activities timely.	3.38	Accept
10	Using Socrative application is exciting.	3.55	Accept
11	The timely question in Socrative application activities increases students' interest.	3.38	Accept
12	The Socrative application helps students to correct misinformation.	3.35	Accept
13	Socrative application assistsin showing what I have learned.	3.19	Accept
14	Socrative application enhances students' ambition by the scoring system.	3.32	Accept
15	Students' thinking ability is rapidly improved with Socrative application.	3.47	Accept
16	Students' performance is improved by the active and relaxing environement provided by Socrative application.	3.42	Accept
17	I answer questions better with Socrative application than in the classroom	3.47	Accept
	Grand Mean	**3.39**	**Accept**

Table 2 showed respondents' view on the efficiency of the Socrative application in online formative assessment in Educational Technology Department, University of Ilorin. The mean score ranged between 3.19 and 3.55. The grand mean of 3.39 indicated the respondents' acceptance on the efficiency of the application in online formative assessment.

Research Question 3:

What is the effectiveness of Socrative application in online formative assessment as observed by respondents in the Educational Technology Department, University of Ilorin?

Table 3:   Effectiveness of Socrative Application in Online Formative Assessment as Perceived by Pre-service Teachers in Ilorin

S/N	Items	Mean	Decision
18	Socrative application is educational and informative.	3.33	**Accept**
19	Socrative application scores answers instantly.	3.73	**Accept**
20	Socrative application displays pre-service teachers' scores instantly.	3.68	**Accept**
21	Using socrative application has enabled me to do self-assessment.	3.48	**Accept**
22	Socrative application afforded me the chance to determine wrong and right answers.	3.59	**Accept**
23	Because of the effectiveness of Socrative application, I can invite a friend to the platform.	3.42	**Accept**
24	Socrative application enables me to access assessment any where.	3.46	**Accept**
25	Socrative application enables error-free scoring.	3.48	**Accept**
	Grand Mean	**3.44**	**Accept**

The data analysed in Table 3 revealed a positive opinion of the respondents on the effectivess of the Socrative application in online formative assessment. The mean scores ranged between 3.33 and 3.73 with a grand mean of 3.44 which is well above the set mean of 2.50. The implication is that the respondents perceived the application to be effective in online formative assessment.

Research Question 4: Are there difficulties faced by the respondents in using Socrative application in online formative assessment in Educational Technology Department, University of Ilorin?

Table 4: Mean Responses of the Respondents on the Difficulties Faced in the Use of Socrative application in Online Formative Assessment in Educational Technology Department, University Ilorin

S/N	Items	Mean	Remark
26	Operating Socrative application was difficult to use.	2.01	**Reject**
27	Internet connection problem affected my accessing the Socrative application environment.	2.05	**Reject**
28	Internet connection problem affected my accessing the Socrative application environment.	2.16	**Reject**
29	Itwas difficulselecting the options in socrative Socrative application.	2.12	**Reject**
30	It was difficult reading from the dashboard of the Socrative application.	2.00	**Reject**
	Grand Mean	**2.07**	**Reject**

Analysed results in Table 4 have mean score values between 2.00 and 2.16 with agrand mean of 2.07 which indicates that most of the respondents disagreed that they face difficulties in using Socrative application in online formative assessment.

Ho₁: Respondents' mean score on the perceived ease of use of Socrative application in online formative assessment in Educational Technology Department, University of Ilorin will not differ significantly based on their gender.

Table 5: Independent t -test of Gender Analysis of Respondents' Perception on the Easeof Use of Socrative Application in   Online Formative Assessment in   the Department of Educational Technology, University of Ilorin

Gender	n	Mean	SD	Df	t-cal	P-value (2-tailed)	Decision
Male	199	20.16	2.13				Not
				346	-2.18	0.16	Rejected
Female	149	21.46	2.10				
Total	**348**	**41.62**	**4.23**				

Table 5 revealed calculated values of $t_{(346)}$ = -2.18, P>.05 which implies that P-value is greater than 0.05. The null hypothesis which stated that respondents' mean score on the perceived ease of use of Socrative application in online formative assessment in the Department of Educational Technology, University of Ilorin will not differ significantly based on their gender is not rejected.

Ho₂: Respondents' gender will not influence their responses on the effectiveness of Socrative application in online formative assessment in Educational Technology Department, University of Ilorin.

Table 6: Independent t-test Analysis of Respondents' Mean Score on the Effectiveness of Socrative application in Online Formative Assessment in the University of Ilorin based ongender

Gender	n	Mean	StD	Df	t-cal	P-value (2-tailed)	Decision
Male	199	36.25	3.32				
				346	-3.56	0.07	Retained
Female	149	38.30	3.43				
Total	**346**	**74.55**	**6.75**				

Table 6 showed that the analysed value of t $_{(346)}$ = .359, P>.05.This signifiesthat the null hypothesis which stated that respondents' gender will not influence their responses on the effectiveness of Socrative application in online formative assessment in the Department of Educational Technology, University of Ilorin is retained.

Discussion of Findings

The result shown in Table1 revealed that most of the pre-service teachers perceived Socrative application aseasy to use in online formative assessment. This finding conforms with the report of CETIN (2018) in a study that the 'Kahoot!' was easy. The finding also aligns with the report by Onasanya, Otemuyiwa and Onasana(2019), that, quizalize application was easy to use in online formative assessment among the undergraduates of Educational Technology Department of the University of Ilorin.

From the data analysed in Table 2, the result showed that majority of the respondents had positive perception on the efficiency of Socrative application in online formative assessment in the Educational Technology Department, University of Ilorin. This finding is in line with the earlier report by Elmahdi, Al-Hattami and Fawzi (2018), that usage of plickers application in teaching and learning created active and exciting environment which ultimately aided the learning method and promoted students' academic achievements.

The analysis of data on the effectiveness of Socrative application as shown inTable 3, revealed that majority of the respondents perceived the application as effective in online formative assessment. This result is in agreement with an earlier finding byOnasanya, Otemuyiwa and Onasanya (2019), that quizalize application as an online formative assessment tool was effective in a study titled: Utilization of Quizalize Application for Formative Assessment in Online Educational Programme: University of Ilorin Students' Perception. The finding aligned with the result by Pede (2017), that the Kahoot! application improved the language of assessment scores, focus and task behaviour of all learners. The finding also confirmed the report by Renand Wagner (2016), that Kahoot! application provides a lively and peaceful environment and assists students in improving their performance.

The result in Table 4 revealed that majority of the respondents did not encounter difficulties in the process of using the Socrative application in online formative assessment. This finding is in conformity with the report of CETIN (2018) that the challenges students faced while using Kahoot! in Online formative assessment was not serious. Onasanya, Otemuyiwa and Onasanya (2019) also supports the findings of this study that the undergraduates of Educational Technology Departmentof the University of Ilorin did not encounter serious challenges in using quizalize application in Online formative assessment.

The result of the analysis of hypothesis as shown in Table 5 revealed no statistical difference in the mean responses of the respondents on the ease of use of Socrative application in online formative assessment in Educational Technology Department of the University of Ilorin based on gender. This result agrees with the reports from earlier research studies (Kehinde & Salami 2018; Utoware & Agbonaye 2018) that there were no significant differences between male and female students' perception on the use of ICT in teaching and learning. However, this finding did not agree with the report by Usman, Orji and Sule (2018), that, there was statistically significant differences in the perception of male and female students on the use of ICT for teaching and learning.

Result of analysis of hypothesis 2, as prsented in Table 6, indicated no significant difference in the respondents' mean responses on the fectiveness of the Socrative application on the basis of gender. The finding agrees with the reports of (Onasanya, Otemuyiwa & Onasanya, 2019; Ebele, Onokpaunu & Ikonomwan, 2018; Samuel, Onasanya & Olumorin 2018) that there were no significant differences in the perceptions of male and female students on the effectiveness of using quizalize application and ICT in online formative assessment and for teaching and learning. On the contrary, the finding disagrees with Usman, Orji and Sule (2018) that there was significant differences in the perceptions of male and female students on the effectiveness of ICT in teaching and learning.

Conclusion

Socrative application is an online formative assessment tool like the Kahoot!, quizalize and edulastic which assists both instructors and learners in creating an active, competitive, and exciting atmosphere that is capable of improving educators and learners' performance. This study aimed to survey pre-service teachers' perception of the application in online formative assessment in Educational Technology Department of the university of Ilorin. Socrative application has been adjudged as easy to use, efficient, effective, and had no serious internet difficulties in using it in online formative assessment. The study also discovered that the application was gender-friendly.

Recommendations

1. Use of Socrative application should be considered by online educational assessment providers, as it enhances the academic performances of the students, especially in the educational technology department, University of Ilorin.

2. Other departments in the Faculty of Education, University of Ilorin, should explore the use of Socrative application in online formative assessment.

3. Lecturers in online educational programmes should get familiarised with Socrative application and its operations.

4. Universities, colleges of education and polytechnics running online educational programmes should explore the introduction of Socrative application to their programmes for information and communication technology integration.

5. Organizers of online educational programmes should consider the integration of Socrative application in the conduct of online formative assessment.

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