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Lecturers Perceived Proficiency in The Use of Virtual Classrooms for Instruction in Colleges of Education

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ABSTRACTS

Virtual Classrooms (VCs) are digital platforms that create an atmosphere by integrating internet technologies in which instructors, students. Scholars and interested persons can engage, connect, communicate and describe their thought and opinions in a well-organized, pedagogical, and professional manner. The study investigated lecturers' perceived proficiency in the use of VCs for teaching and learning in colleges of education in Ondo State, south-western Nigeria. The objectives were to (i) investigate lecturers' perceived proficiency in the use of Virtual Classrooms for instruction; (ii) determine the difference in lecturers' gender on their perceived proficiency in the use of virtual classrooms for instruction; and (iii) investigate lecturers' perceived proficiency in the use of virtual classrooms for instruction based on years of experience. Questionnaires were administered to 298 lecturers. Findings indicated that irrespective of gender, lecturers' perceived proficiency towards the use of VCs do not vary, while lecturers' perceived proficiency are influenced by their years of teaching experience with a statistical value of t (298) = 4.86, p = .000) in favor of less experienced lecturers'. The study recommended among others that concerned agencies and school management should sensitize, train, and provide an enabling environment that will encourage the use of VCs among COE lecturers irrespective of gender and years of teaching experience.

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1. INTRODUCTION

This breakthrough gives those who would otherwise be unable to continue teacher training the chance to do so, even if they are working or caring for small children. This demonstrates the popularity of teacher education. Distance education utilizing educational technology may reach these students, regardless of their age or socioeconomic status, and help them enhance their pedagogical skills in teacher training without having to leave their regular employment or obligations at home (Hali *et al*., 2021).

According to an interview conducted by Afakillah *et al*. (2021), Students' difficulties comprehending and developing concepts and theories were caused by the conventional way of teaching which is a teacher-centered learning approach. As a result, learners are exclusively focused on the steps and directions given by the teachers, which makes the learners being lethargic and less stimulating when participating in the teaching and learning activities.

COVID-19 forced us all to rethink how to function in society with a global pandemic which will all regard as the new normal. It publicizes how important virtual teaching should be fully integrated as a new mode of instructional delivery. However, most stakeholders in the educational industries are not acquainted with the benefits of this mode of instructional delivery, which makes everyone's lesson hours an arduous exercise of organizing, training, practice, and patience (Ligon, 2021). These benefits are the capability to access multimedia learning resources such as texts, videos, images, podcasts, and so on. Students who are taught using these multimedia learning resources are highly motivated towards learning than students who are not taught with it. Therefore, the use of multimedia by instructors is critical in motivating learners because students who are highly motivated do better than those who are not motivated (Yasin *et al*., 2021). Other benefits are the planning and managing of lessons such as the submission of homework, classwork, tracking students' success, giving feedback, and holding group meetings. Institutions of higher learning must take advantage of all these features to minimize stigma, maximize connectivity and equity for students, and enhance learning outcomes in ways that are not feasible in the real face-to-face classroom environment.

The flexibility of the VCs can help to provide fantastic opportunities for countries to support a variety of learning methodologies (Nwabude *et al*., 2020). These VCs can also be used as a supplement to conventional educational practices, known as Blended Learning. The increased use of VCs by colleges and other educational establishments is a fact that would undoubtedly have a significant effect on the learning process (Uddin & Faiz, 2021). Reduction in educational expenses and determining one expected learning outcome are part of the significant effects of VCs in education. However, it appears that most sophisticated VCs frameworks/models presently in existence are not often readily available for students, and lecturers who are expected to use them were unable to due to several constraints (Nwabude *et al*., 2020).

There is a broad variety of approaches for providing online education. Some schools are completely online, with instructors integrating asynchronous and synchronous roles to design the instruction. The asynchronous method in virtual education refers to work that students complete in their own time outside of class. Teachers assign homework, and students are expected to finish it and turn it in at a certain date. Synchronous refers to live learning sessions in which students log on to an online classroom and partake in exercises with their instructor in real-time. However, not all lecturers are familiar with online classes, and there is a digital gap between older instructors who have never used even the most rudimentary technological

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devices, talk more of virtual platforms, and younger instructors who are knowledgeable of and proficient in newer technologies.

Virtual platform technology creates a virtual learning experience that helps students at distant locations develop their skills and knowledge. Scholars have investigated the use of VCs to construct virtual nature and provide a dynamic experience of virtual exposure to natural elements (Mollazadeh & Zhu, 2021). This VC is a product of the web 2.0 tools and research carried out by (Ahmed *et al*., 2016) discovers that there is a moderate level of social media usage for instruction such as Whatsapp and skype; Youtube; blogs. Google classroom is another epitome of VCs which the framework helps the tutor to spend more time with the student instead of paperwork. Assignment and another type of assessment can be carried out on google classroom with the integration of apps like the google form, docs, drive, and other google applications. An assignment can now be submitted online, the google classroom welcome numerous participants in as much they have the code to the google classroom and a functional email (Iftakhar, 2016).

The adequate technical know-how of eLearning platforms results in the ability of instructors to navigate through VC platforms. Gulbahar & Kalelioglu (2015) noted that e-instructors are necessary for providing eLearning courses and the success is dependent on how skilled the instructors are. Lecturers or teachers who are proficient in teaching in a digital age are the ones who are competent in teaching and learning and also equipped with adequate knowledge of how to present content on the VCs. Thus, these lecturers can also be referred to as e-instructors. More so, the level of online learning competency has a positive influence on the use of these eLearning platforms (Ithriah *et al*., 2020).

Although, several studies submitted that the male gender is more proficient and versatile in the use of VCs. However, Aremu & Fasan's (2011), studies contradict the submission. The researchers established that female teachers or lecturers have a higher knowledge of how to operate computers than their male counterparts. Also, Syvänen *et al*. (2016) opined that there were significant differences in perceived technological pressure between male and female educators. It indicates that the female teachers were less demanding than the male teacher, male genders have a higher level of computer literacy than their female counterparts. This is because the male gender had more access to computers than the female, and this will, in turn, influence their usage which makes the male be a higher user of the Computer than the female. The competency levels and notions of colleges of education lecturers' in Nigeria towards eLearning do not vary between males and females.

The years of teaching experience influence the teachers use of ICT tools for instruction, they also emphasize that teachers who have 5-10 years of teaching experience are accorded with high percentage usage of ICT for teaching and learning followed by the ones who have 1-4 teaching experience while the teachers who have more than 20 years teaching experience tends to have a lower percentage in the use of ICT for teaching and learning.

The Objectives of the study were to:

(i) investigate lecturers' perceived proficiency in the use of Virtual Classrooms for instruction;
(ii) determine the difference in lecturers' gender on their perceived proficiency in the use of virtual classrooms for instruction; and
(iii) investigate lecturers' perceived proficiency in the use of virtual classrooms for instruction based on years of experience.
(iv) The study answered the following research questions:

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(v) What is the perceived proficiency of lecturers in the use of VCs for instruction?
(vi) What is the difference in lecturers' gender on their perceived proficiency in the use of VCs for instruction?
(vii) What are the differences in the years of teaching experience of lecturers' perceived proficiency in the use of VCs for instruction?

The study tested the following null hypotheses at a significance level of 0.05.

(i) Ho1: There is no significant difference between male and female lecturers' perceived proficiency in the use of virtual classrooms for instruction.
(ii) Ho2: There is no significant difference between experienced and less experienced lecturers' perceived proficiency in the use of virtual classrooms for instruction.

2. METHODS

This study employs a survey-based descriptive research approach. This research technique was chosen since it allowed for the evaluation of many concepts, notions, and thoughts of the respondents to the study. This study inquiry followed appropriate ethical norms.

2.1. Population and Sample of the Study

This study's population included all Colleges of Education Lecturers in Ondo State, Nigeria. For this study, multistage sampling was employed: purposive sampling was used to sample two colleges of education from the state's five colleges of education based on academic activity. The sample size was determined via proportionate sampling from each college of education. Using Research Advisor, a simple random selection approach was employed to sample 298 out of 551 lecturers from the two colleges of education.

2.2. Instrument for Data Collection

A closed questionnaire with a 4-points Likert scale having two sections was designed in line with the research objectives. Section A collected demographic information, whereas Section B assessed lecturers' perceived proficiency in using VCs for instruction. The items in this section were graded on a Likert scale response style of Highly Proficient (HP), Proficient (P), Fairly Proficient (FP), and Not Proficient (NP).

2.3. Validity and Reliability of the Research Instrument

The instrument was validated by three educational technology specialists from the University of Ilorin in Ilorin, Nigeria. Pilot research was done on 34 lecturers at Kwara State College of Education, who were not included in the study's sample, to test the instrument's reliability. The data from the pilot study were analyzed to determine the instrument's internal consistency and reliability, and the Cronbach alpha value was 0.71. This indicates that the instrument is reliable, as 0.70 and above indicates a good instrument, and that the questionnaire was appropriate for collecting data from the original population.

2.4. Analysis of the Data

Data was collected and analyzed using descriptive statistics such as mean score, frequency counts, and percentage distribution to answer research question 1. The independent t-test inferential statistics were utilized to analyze hypotheses 1 and 2. All hypotheses were tested at a 0.05 level of significance.

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3. RESULTS AND DISCUSSION

Descriptive statistics are discussed first, followed by answers from designated sections (**Table 1**). According to the table, 176 (59.1%) of sample replies were male students, while 122 (40.9%) were female students. This indicated that male lecturers were more than female lecturers in colleges of education.

Table 1. Percentage distribution of respondents by gender.

Gender	Frequency	Percentage
Male	176	59.1
Female	122	40.9
Total	298	100.0

Figure 1 indicates that respondents with a higher number are the male which is the red-colored while the female counterpart is the yellow-colored bar.

Table 2 indicates that respondents who are experienced are higher with 201 (67.4%) while the less experience had 97 (32.6%).

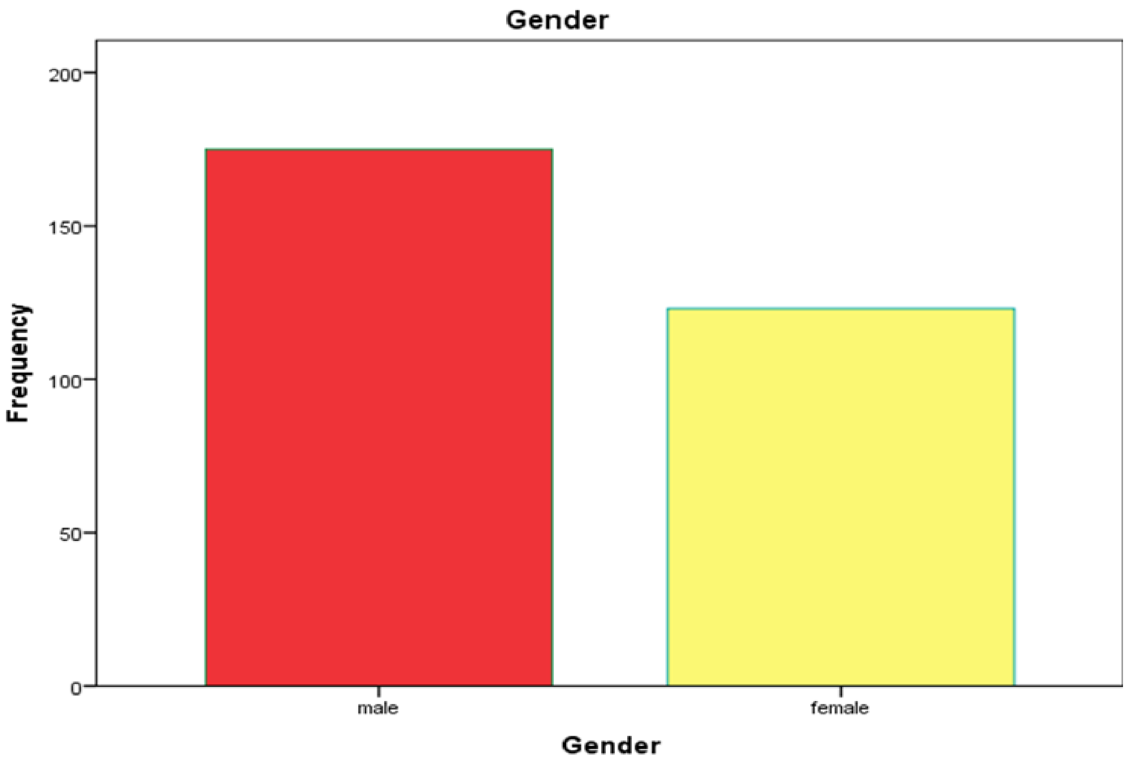

Figure 1. Bar chart distribution on gender.

Table 2. Percentage distribution of respondents by years of teaching experience.

Teaching Experience	Frequency	Percent
Less Experience	97	32.6
Experienced	201	67.4
Total	298	100.0

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Figure 2 indicated that respondents with a higher number are the experienced lecturers which is the green colored bar while their less experienced counterpart is the blue-colored bar.

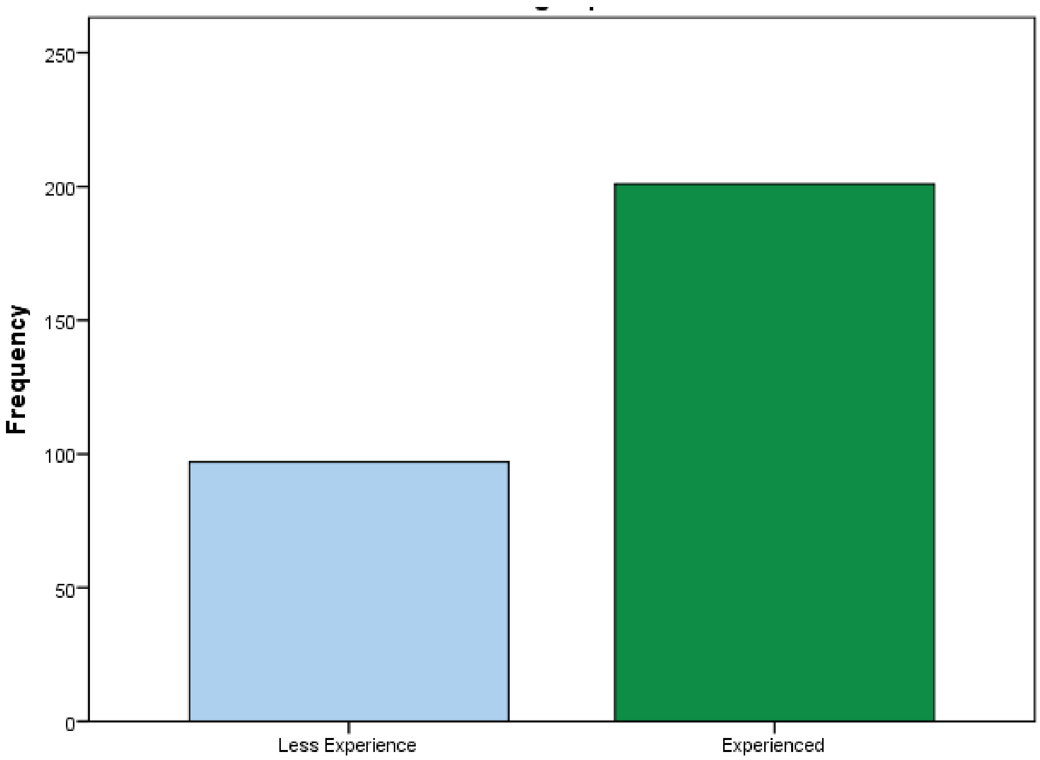

Figure 2. Bar chart distribution on experience.

Table 3, revealed that Item 1 “I can use VCs for instruction” ranked the highest with the mean score of 3.48, followed by items 2 and 9 with the mean score of 3.04 and 3.00 of which the respondents believe that they can use different VCs for instruction and they can easily use VCs on a computer and mobile devices for instruction. Respondent also ranked items 3, 11, and 5 having the mean score of 2.97, 2.95, and 2.94 respectively which implied that they can create their classrooms, provide feedback on VCs and mobilize students on how to use VC. However, items 4 and 6 ranked the least with the mean score of 2.62 and 2.66 respectively which stated that I can use VCs to keep student academic records and I can filter the classroom page by topic. Therefore, a grand mean of 2.91 was obtained from lecturers’ perceived proficiency in the use of VCs for instruction in Ondo state. Hence, the benchmark of 2.5 is below the grand mean which implies that lecturers’ perceived proficiency in the use of VCs for instruction is averagely high.

Table 4 indicated that t (298) = .573, p = .567. This means that the stated null hypothesis was not rejected. This was as a result of the t-value of .573 resulting in a .567 significant value which was greater than the 0.05 alpha value.

By implication, the stated null hypothesis was not rejected. Thus, there was no significant difference between male and female perceived proficiency in the use of virtual classrooms for instruction. This implied that both male and female lecturers are proficient in the use of VCs for instruction.

Table 5 indicated that t (298) = 4.86, p = .000. This implies that the stated null hypothesis was rejected. This was as a result of the t-value of 4.86 resulting in a .000 significant value which was less than 0.05 alpha value.

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By implication, the stated null hypothesis was rejected. Thus, there was a significant difference between experienced and less experienced lecturers' perceived proficiency in the use of VCs for instruction. In other words, the experienced lecturers are less proficient in the use of VCs for instruction than the less experienced lecturers.

Table 3. Lecturers' perceived proficiency in the use of virtual classroom for instruction.

S/N	Items	HP	P	FP	NP	Mean	Std
1	I can use VCs for instruction	168 (56.4%)	110 (36.9%)	15 (5.0%)	5 (1.7%)	3.48	0.67
2	I can use different VCs for instruction	69 (18.8%)	200 (67.1%)	30 (10.1%)	9 (3.0%)	3.04	0.65
3	I can create my own VCs	89 (29.9%)	124 (41.6%)	72 (24.2%)	13 (4.3%)	2.97	0.85
4	I can use VCs to keep student academic records	64 (21.5%)	112 (37.6)	68 (22.8%)	54 (18.1%)	2.62	1.01
5	I can mobilize my student on how to use VCs or learning	90 (30.2%)	126 (42.3%)	56 (18.8%)	26 (8.7%)	2.94	0.92
6	I can filter the classroom page by topics	49 (16.4%)	131 (44.0%)	85 (28.5%)	33 (11.1%)	2.66	0.88
7	I can randomly select students to call on with the students' selector	73 (24.5%)	94 (31.6%)	99 (33.2%)	32 (10.7%)	2.70	0.96
8	I can prepare VCs-based learning material	79 (26.5%)	127 (42.6%)	59 (19.8%)	33 (11.1%)	2.85	0.94
9	I can easily use VCs on a computer and mobile devices for instruction	98 (32.9%)	123 (41.3%)	56 (18.8%)	21 (7.0%)	3.00	0.89
10	I can add grades to work submitted on my VCs	69 (23.2%)	132 (44.3%)	61 (20.4%)	36 (12.1%)	2.79	0.94
11	I can use VCs to provide feedback to the students	94 (31.4%)	122 (40.9%)	55 (18.6%)	27 (9.1%)	2.95	0.93
12	I can assist my colleagues on how to use VCs for instruction.	89 (29.9%)	116 (38.9%)	60 (20.1%)	33 (11.1%)	2.88	0.97
	GRAND MEAN					2.91	0.52

Table 4. t-test of male and female lecturers perceived-proficiency in the use of virtual classroom for instruction.

Gender	N	Mean	Std. Deviation	Std. Error Mean	Df	t	Sig(2-tailed)
Male	176	2.92	0.54382	0.04099	0.296	0.573	0.567
Female	122	2.88	0.49532	0.04484			

Table 5. t-test experienced and less experienced lecturers' perceived proficiency in the use of virtual classroom for instruction.

Years of teaching experience	N	Mean	Std. Deviation	Std. Error Mean	Df	T	Sig(2-tailed)
Less Experience	97	3.11	0.42165	0.04281	296	4.86	0.000
Experienced	201	2.81	0.54014	0.03810			

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4. SUMMARY OF FINDINGS

The following are summaries of the findings based on the analysis results:

(i) The lecturers are averagely proficient in the use of VCs for instruction

(ii) There was no significant difference in male and female lecturers' perceived proficiency in the use of VCs for instruction.

(iii) There was a significant difference in the lecturers' perceived proficiency in the use of VCs for instruction in favor of the less experienced lecturers [t (298) = 4.86, p = .000)].

Lecturers' perceived proficiency in the use of VCs for instruction was investigated using research question 2. Based on the mean values of the results of the lecturers' perceived proficiency in the use of VCs for instruction, the participants' perceived proficiency was averagely high. This revealed that a good number of lecturers were averagely proficient in the utilization of VCs for instruction. This finding corroborated the earlier findings of Ahmad *et al*. (2020) that instructors are moderately proficient in the use of technology applications.

The Gender Difference in lecturers' perceived proficiency in the use of VC for instruction was examined by research question 4. The result revealed that there was no significant difference between male and female lecturers' perceived proficiency in the use of VCs for instruction and this was supported with null hypothesis 2. This finding on gender influence agreed with the study of Agbatogun (2010) which indicated that the teachers' ICT literacy level was not gender-specific. The lecturers' versatility level in the use of eLearning platforms is not gender-based. However, the findings contradicted the study of Aremu & Fasan (2011) which posited that female lecturers and teachers have a better understanding of computer operation than their male counterparts. A gender difference in teachers' computer literacy abilities, with males having a greater degree of computer literacy than females.

The differences in lecturers' years of teaching experience on their perceived-proficiency level in the use of VCs for instruction were examined using research question 6. The findings on the influence of years of teaching experience on lecturers' perceived-proficiency in the use of VCs established that there was a difference in the lecturers' perceived-proficiency in the use of VC for instruction based on years of teaching experience which is in favor of the less experience and this was supported by hypothesis 4. The result of the study was found to be similar to that of Syvänen *et al*. (2016) which posited that younger teachers are more professional in the use of technology, because of their frequent use of technology. However, the findings oppose the findings of Martin *et al*. (2019) which revealed that Lecturers with less than five years of experience have a poorer opinion of their ability to teach online.

5. CONCLUSION

The study concluded that most of the lecturers had an averagely high perceived Proficiency in the use of VCs for instruction, which is commendable. It was also concluded that there were no significant differences in the lecturers' perceived proficiency in the use of VCs for instruction based on gender, which is a good step to effective utilization of VCs for the instructional process. However, with respect to the lecturers' years of teaching experience, the study concluded that the less experienced lecturers' shows higher perceived proficiency than their less experienced counterpart. Recommended among others was that government and educational agencies should make the use of VCs platforms mandatory in all tertiary institutions, as well as make it mandatory for all lecturers to be proficient at both creating and adopting VCs that are well-suited to the needs of the learners.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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