



ASEAN Journal of Science and Engineering Education



Journal homepage: <http://ejournal.upi.edu/index.php/AJSEE/>

Science Lecturers' Seeming Use of Google Classroom for Instruction

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ABSTRACTS

This study investigated the science lecturers' perceived use of Google classroom for instruction as well as the influence of teaching experience and experience in the use of the google classroom for instruction. The study hires a survey method with the use of the online questionnaire. All lecturers in the faculty of science made up the population for the study. The findings established that science lecturers have good seeming on the use of google classroom for instruction. Also, lecturers' years of experience influenced their use of Google classroom for instruction. The study concluded that lecturers perceived use of google classroom encouraged them to use it in their instructional activities. It was however recommended that Google Classroom also has to constantly upgrade to suit user needs so as not to be replaced with newer, better, faster, more efficient alternatives.

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ARTICLE INFO

Article History:

Received 20 Jun 2021

Revised 17 Jul 2021

Accepted 29 Aug 2021

Available online 30 Aug 2021

Keyword:

Google classroom,

Instruction,

Science lecturers,

Seeming Use,

Years of Experience in the use,

Google classroom,

Years of Experience.

1. INTRODUCTION

The role of science lecturers is to instruct students in subject-specific classrooms. They create lesson plans; evaluate student performances; and teach using lectures, technology, and hands-on learning experiences. They also perform researches relating to science. They can form and maintain interpersonal relationships with students, other staff, and administrators. And the role of education lecturers is to educate students to become educators themselves. They also perform researches and maintain relationships between students, staff, and other administrators. Lecturers' perceived use of Google Classroom is defined as the degree to which a person believes that using the system is effective in carrying out the work it is expected to do. According to Davis, (1989) as quoted by Wijaya, (2005) perceived usefulness as a predictor of usage behavior, will be influential in the development of the system because the user believes in the existence of the Use Performance relationship.

Google Classroom is a free web-based learning platform developed by Google, where lecturers can run a class online, create curriculums, and share assignments with students in a paperless way. The platform simplifies teacher-student collaboration by leveraging the various G Suite services like Google Docs, Sheets, and Slides. Basically, anyone with a Google account can use Google Classroom. Organizations, non-profits, schools, independent educators, home-schoolers, administrators, and families are all eligible to use Google Classroom. Lecturers and students are primary users and can access Google Classroom through a school account. Some of the main features of google classroom are assignments, customizable grading systems (total points grading, weighted by category, no overall grade), virtual discussions, announcements, and live classes.

Iftakhar, (2016) also identified that Google classroom has some features which are advantageous for lecturers' use during instruction. Firstly, it has a single view for student assignments. Classrooms have pages for each student which show all the student's assignments in the class. With this view, lecturers can easily see the status of each task and can use filters to see each assignment, assignments lost, or tasks that have been assessed and returned. This feature gives the advantage for lecturers to assign the students online. When the students are done with the assignment, they can submit it and in many various formats. And they can easily track assessments.

In the past, there have been efforts made to integrate technology into the classroom due to the wave of technology in society, the presence of distance learning, hybrid learning, and blended learning. Huang et al., (2021) researched in Taiwan on students and it showed a positive perception regarding the use of google classroom. There was a need to research lecturers' perceptions. Although, Educational institute management or administration has a major role to play in integrating technology in classrooms as they have to finance or manage the process and ultimately decide to what extent they plan to use technology. Azhar and Iqbal, (2018) researched high schools on the role of administrators in the use of technology in which they discovered that the administrators held positive beliefs regarding integrating technology in the classroom.

So far, to the best knowledge of the researcher, all the research conducted on Google classroom has indicated a positive response from the students. None of the research has focused on taking into account the teacher's perceptions of the effectiveness of Google Classroom. The role of teachers in the adoption of any new learning methodology should not be ignored as they are the central figure in the transformation of educational practices.

The main purpose of this study is to examine the Science lecturers' perceived use of Google classroom for instruction at the University of Ilorin, Ilorin. The specific purposes of the study are to:

- (i) examine the perceived use of Google classroom for instruction among Science lecturers in the University of Ilorin, Ilorin
- (ii) investigate the influence of years of teaching experience on Science lecturers' perceived use of Google classroom for instruction in the University of Ilorin, Ilorin
- (iii) investigate the influence of years of experience in the use of Google Classroom on Science lecturers' perceived use of Google classroom for instruction in the University of Ilorin, Ilorin

To guide this study, the following research questions are raised:

- (i) What is the perceived use of Google Classroom for instruction among science lecturers in the University of Ilorin, Ilorin?
- (ii) What influence do lecturers' years of instructional experience have on their perceived use of google classroom for instruction?
- (iii) What influence do lecturers' years of instructional experience in the use of Google classroom have on their perceived use of google classroom for instruction?

The following null hypothesis will be tested for this study:

- (i) H01: There is no significant difference between lecturers perceived use of google classroom for instruction based on years of instructional experience.
- (ii) H02: There is no significant difference between lecturers perceived use of google classroom for instruction based on years of experience in the use of Google Classroom.

2. METHODS

2.1. Research Design

The research design is a descriptive research survey method. The descriptive survey research method was used to gather accurate information used to examine the science lecturers' perceived use of Google Classroom for instruction at the University of Ilorin, Ilorin.

2.2. Sample and Sampling Techniques

Progressive sampling was carried out on the target population. The expected population of this study was all the lecturers of Faculties of Science at the University of Ilorin, Ilorin. They were expected to have used Google Classroom for at least a semester.

The population of this covered the Science (Life and Physical) in the University of Ilorin, Ilorin in the 2020/2021 academic session. A sample size of all the Science lecturers in the University of Ilorin, Ilorin was be drawn for the study. According to data gathered from the Academic Support Services, the entire population of lecturers in the Faculty of Science having 205 (life science-85, physical science-120). However, for this study, only 100% of the entire population that is 205 lecturers was sampled for the study and presented with questionnaires by the researcher. These were lecturers that have used the Google Classroom app previously for at least a semester. This data collection was achieved within 6 weeks considering the researcher's proximity to the sampling population and the large-scale sample.

2.3. Research Instruments

The instrument that was used for the collection of data was titled: Science Lecturers' Perceived Use of Google Classroom Questionnaire. The questionnaire was divided into two Sections: Sections A and B. Section A contained questions relating to the biodata of the respondent (lecturers) which included: faculty and years of experience. Questions were asked

using a grouped frequency distribution method. Section B contained the 9 item statements on the perceived use of Google Classroom. All the items were rated on a four-point rating scale: Strongly Agreed (SA) _4, Agreed (A) _3, Disagreed (D) _2, and Strongly Disagreed (SD) _1. The respondents were expected to choose one of the options that best suited their opinions on the items in the questionnaire. An e-form/google form questionnaire was also designed for maximum collection of data.

2.4. Validation of Research Instrument

The instrument was presented to three (3) experts from the Department of Educational Technology to examine to establish both face and content validity of the instrument. Their advice and suggestion were used to modify the items in the instrument and also prepare the final draft of the questionnaire.

2.5. Procedure for Data Collection

The researchers personally administered the questionnaires to lecturers in the designated faculties of the institution. Adequate time was given to lecturers to fill the questionnaire after which the instrument was collected immediately. This was to ensure that a sufficient amount of time is given to fill them and to enhance the return rate. The link to the e-form was also shared whenever necessary. The interview method was also utilized during data collection. Regarding ethical issues, names of the respondents, personal information was not required to participate in the study. All data collected was only be used for this research.

2.6. Data Analysis Technique

Data analysis deals with the presentation of the generated data for the research in a comprehensive manner. Descriptive statistics (mean and standard deviation) and inferential statistical tools were used to analyze the data obtained from the respondents using SPSS. ANOVA (Analysis of Variance) was used to test hypotheses one and two.

3. RESULTS AND DISCUSSION

This chapter presents the analysis and results obtained from the data gathered based on research questions and hypotheses stated in chapter one. The data presented provide a summary of the major characteristics of the respondents that were involved in the study. The questionnaire was directed to the respondents to ensure that necessary information was captured and measured accurately. Out of the 205 copies of the electronic questionnaire that were administered, 150 were properly completed and returned at a return rate of 73.2%. This was further used for the analysis in this study.

3.1. Demographic Characteristics of the Participants

The distribution of students on gender was analyzed. The students' gender was described using a percentage as shown in **Table 1**.

Table 1. Demographic data based on faculty of lecturers

Faculty of Instruction	Frequency	Percent	Cumulative Percent
Physical Science	93	62.0	62.0
Life Science	57	38.0	100.0
Total	150	100.0	

As indicated in **Table 1**, 93 (62.0%) of the entire population were from the faculty of physical science while the remaining comprising of 57(38.0%) were from the faculty of life science.

The lecturers' years of instructional experience were analyzed and presented in **Table 2**. It revealed that 63 (42.0%) of the respondents have less than 10 years of instructional experience, 56 (37.3%) of the respondents have years of instructional experience within 11 to 20 years, 24 (16.0%) of the respondents have years of instructional experience within 21 to 30 years, while 7 (4.7%) of the respondents have more than 30 years of instructional experience.

Figure 1 shows the chart on respondents' years of instructional experience indicated that most of the respondents have less than 10 years of instructional experience.

The lecturers' years of experience in the use of Google classroom were analyzed and presented in **Table 3**. It revealed that 84 (56.0%) of the respondents have less than 2 years of experience in the use of Google classroom, 84 (56.0%) of the respondents have 2 to 3 years of experience in the use of GC, while 28 (18.7%) of the respondents have 4 to 5 years of experience in the use of GC.

Table 2. Demographic data based on respondents' years of instructional experience.

Years of Instructional Experience	Frequency	Percent	Cumulative Percent
Less than 10	63	42.0	42.0
11-20	56	37.3	79.3
21-30	24	16.0	95.3
More than 30	7	4.7	100.0
Total	150	100.0	

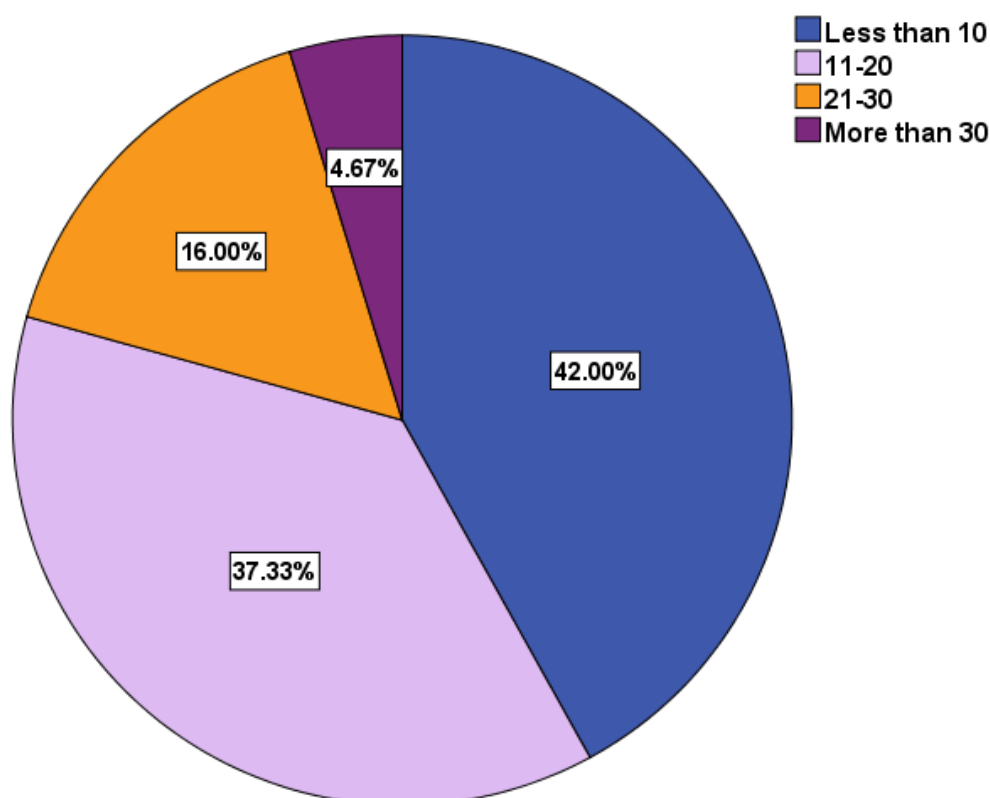


Figure 1. Chart on respondents' years of instructional experience.

Table 3. Respondents' Years of Experience in the use of Google Classroom.

Years of Experience in the use of Google Classroom	Frequency	Percent	Cumulative Percent
2-3 years	84	56.0	56.0
4-5 years	28	18.7	74.7
Less than 2 Years	38	25.3	100.0
Total	150	100.0	

3.2. Research Question One

What is the perceived use of Google Classroom for instruction among science lecturers in the University of Ilorin, Ilorin?

In response to this, frequency count, percentage, and mean were conducted to determine science lecturers' perceived use of Google Classroom for instruction in the University of Ilorin. The result is shown in **Table 4**.

Table 4 revealed the result on the perceived use of Google Classroom for instruction among science lecturers at the University of Ilorin. With a mean score of 3.61 and 3.75, Google Classroom (GC) is perceived by science lecturers to be useful and saves time. Also, science lecturers' perception established that GC makes the instructional process effective by automating assignment submission, collection, and marking with a mean score of 3.49. Furthermore, GC has aided a paperless, less traditional instructional process with a mean score of 3.70. Others followed suit as shown in table 4. A grand mean score of 3.12 deduced that science lecturers have a positive perception of the use of Google Classroom for instruction.

Table 4. Science lecturers' perceived use of google classroom for instruction.

S/N	Items	Strongly Agree	Agree	Disagree	Strongly Disagree	Mean
1.	Google Classroom (GC) is useful	35 (61.4%)	22 (36.8%)	-	-	3.61
2.	Years of instructional experience affect adopting GC for instruction	4 (7.0%)	11 (19.3%)	26 (45.6%)	16 (28.1%)	2.05
3.	Using GC saves time	43 (75.4%)	14 (24.6%)	-	-	3.75
4.	GC helps student/lecturer relationship by making interaction easier	12 (21.1%)	20 (35.1%)	13 (22.8%)	12 (21.1%)	2.56
5.	Using GC for instruction is subject selective	17 (29.8%)	18 (31.6%)	15 (26.3%)	7 (12.3%)	2.79
6.	GC makes instructional process effective by automating assignment submission, collection and marking	30 (52.6%)	22 (38.6%)	4 (7.0%)	1 (1.8%)	3.42
7.	GC has a user-friendly interface	27 (47.4%)	26 (45.6%)	3 (5.3%)	1 (1.8%)	3.39
8.	GC has aided a paperless, less traditional instructional process	41 (71.9%)	15 (26.3%)	1 (1.8%)	--	3.70
9.	GC has a long-term future in instruction in university of Ilorin	15 (26.3%)	21 (36.8%)	14 (24.6%)	7 (12.3%)	2.77
	Perceived Use					3.12

3.3. Hypotheses Testing

Based on research questions 2 & 3, research hypotheses 1-2 were developed. The results related to hypotheses one to three formulated for the study in chapter one were as shown in subsequent tables. All hypotheses were tested at a 0.05 level of significance

3.4. Research Question Two

What influence do lecturers' years of instructional experience have on their perceived' use of google classroom for instruction?

3.5. Hypothesis One

There is no significant difference between lecturers perceived' use of google classroom for instruction based on years of instructional experience.

Analysis of Covariance was conducted to determine if there is any significant difference between lecturers perceived' use of google classroom for instruction based on years of instructional experience. The result is shown in **Table 5**.

The result in **Table 5** shows the significant difference in the mean scores on lecturers perceived' use of google classroom for instruction based on years of instructional experience. It indicates that $F(3, 146) = 687.534$, $P < 0.05$, which means that there is no significant difference in the mean scores on lecturers perceived' use of google classroom for instruction based on years of instructional experience. Hence, the null hypothesis is hereby rejected. Thus, there is a significant difference between lecturers perceived' use of google classroom for instruction based on years of instructional experience. The PostHoc was used to show the direction of the difference that shown in **Table 6**.

Scheffe's Post hoc analysis on the significant difference between lecturers perceived' use of google classroom for instruction based on years of instructional experience indicated that significant difference existed between lecturers with less than 10 years of experience perceived' use of google classroom for instruction and those with 11-20 years of experience.

Table 5. ANOVA on significant difference on lecturers' perception on use of GC.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.807 ^a	3	.602	5.387	.002
Intercept	687.534	1	687.534	6150.189	.000
Years of Instructional Experience	1.807	3	.602	5.387	.002
Error	16.321	146	.112		
Total	1496.370	150			
Corrected Total	18.128	149			

a. R Squared = .100 (Adjusted R Squared = .081)

Table 6. Scheffe's post hoc analysis on difference between perceived use based on experience.

(I) Years of Instructional Experience	(J) Years of Instructional Experience	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 10	11-20	.0653	.06141	.770	-.1084	.2389
	21-30	.2934*	.08020	.005	.0666	.5203
	More than 30	.2875	.13321	.204	-.0893	.6642
11-20	Less than 10	-.0653	.06141	.770	-.2389	.1084
	21-30	.2282	.08157	.054	-.0025	.4589
	More than 30	.2222	.13404	.435	-.1569	.6013
21-30	Less than 10	-.2934*	.08020	.005	-.5203	-.0666
	11-20	-.2282	.08157	.054	-.4589	.0025
	More than 30	-.0060	.14362	1.000	-.4122	.4003
More than 30	Less than 10	-.2875	.13321	.204	-.6642	.0893
	11-20	-.2222	.13404	.435	-.6013	.1569
	21-30	.0060	.14362	1.000	-.4003	.4122

Based on observed means.

The error term is Mean Square (Error) = .112.

*. The mean difference is significant at the 0.05 level.

3.6. Research Question Three

What difference existed between lecturers perceived' use of google classroom for instruction based on years of experience in the use of Google Classroom

3.7. Hypothesis Two

There is no significant difference between lecturers perceived' use of google classroom for instruction based on years of experience in the use of Google Classroom. In reaction to this, an Analysis of Variance was conducted to determine if there is any significant difference between lecturers perceived' use of google classroom for instruction based on years of experience in the use of Google Classroom. The result is shown in **Table 7**.

Table 7. ANOVA on the lecturers perceived' use of google classroom for instruction based on years of experience in the use of google classroom.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.093 ^a	2	.047	.338	.715
Intercept	539.943	1	539.943	3919.350	.000
Years of Experience in the use of Google Classroom	.093	2	.047	.338	.715
Error	7.990	147	.138		
Total	659.457	150			
Corrected Total	8.083	149			

a. R Squared = .012 (Adjusted R Squared = -.023)

The result in **Table 7** shows the significant difference in the mean scores on lecturers perceived' use of google classroom for instruction based on years of experience in the use of Google Classroom. It indicates that $F(2, 147) = 539.934$, $P > 0.05$, which means that there is no significant difference in the mean scores on lecturers perceived' use of google classroom for

instruction based on years of experience in the use of Google Classroom. Hence, the null hypothesis is hereby retained. Thus, there is no significant difference between lecturers perceived' use of google classroom for instruction based on years of experience in the use of Google Classroom.

3.8. Discussion

From the study, it can be implied that internet access and connectivity is the major drawback to implementing Google Classroom for instructions in the University of Ilorin. Due to the developing nature of the country, it is no doubt a valid reason. Access to digital tools such as smartphones, laptops, desktops, etc. poses a problem for the students which in turn discourages the lecturers. A negative attitude, lack of interest in the online classroom, and disingenuous responses from the students make the lecturers unsure of the effectiveness of the method of instruction, unlike a physical classroom where lecturers can watch and read students' reactions. Since Google Classroom, although free, requires an internet connection, data charges can be a discourager. Unstable electrical connections in the country also affect the maximum use of Google Classroom for instruction in the University of Ilorin. There is no significant difference between lecturers perceived' use of google classroom for instruction based on years of experience in the use of Google Classroom. Google Classroom's design purposefully simplifies the instructional interface and options used for delivering and tracking assignments; communication with the entire course or individuals is also simplified through announcements, email, and push notifications.

There is a significant difference between lecturers perceived' use of google classroom for instruction based on years of instructional experience. All these imply that given a good environment, google classroom would be effectively useful. But without an enabling environment, lecturers may have to revert to the conventional means of the instructional process. Although, presence of alternative applications such as zoom, blue board, Edmodo, etc. threatens the long-term usefulness of Google Classroom with their special features of video conferencing calls, smart boards, interactive boards, google classroom still has a lot to offer. [Huang et al., \(2021\)](#) established in their studies a positive perception regarding the use of google classroom. Although, Educational institute management or administration has a major role to play in integrating technology in classrooms as they have to finance or manage the process and ultimately decide to what extent they plan to use technology. [Azhar and Iqbal, \(2018\)](#) researched high schools on the role of administrators in the use of technology in which they discovered that the administrators held positive beliefs regarding integrating technology in the classroom.

4. CONCLUSION

Based on research and findings, it can be concluded that Google Classroom is very useful when applied to the instructional process. It supports distance, blended and remote learning beyond the four walls of the conventional classroom. With the present surge of technology, Google Classroom remains one of the easiest to use without requiring special training from lecturers and students. The use of Google Classroom for instruction is effective, efficient, mobile, and user-friendly. And, it can be incorporated into any area of specialization if need be. Subjects requiring practical like the sciences may need an alternative application to Google Classroom. Such applications support video conferencing where the lecturers can fully demonstrate lessons. As a recommendation, we concluded that

- (i) Lecturers need to support and implement the use of smart applications for effective instruction. And positive perception needs to be focused on. Today, learning is far beyond

the classroom. The recent pandemic confirmed the need to incorporate technology into the instructional process.

- (ii) Google Classroom also has to constantly upgrade to suit user needs so as not to be replaced with newer, better, faster, more efficient alternatives.

5. 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.

6. REFERENCES

- Azhar, K. A., and Iqbal, N. (2018). Effectiveness of Google classroom: Teachers' perceptions. *Prizren Social Science Journal*, 2(2), 52-66.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Huang, T. H., Liu, F., Chen, L. C., and Tsai, C. C. (2021). The acceptance and impact of Google Classroom integrating into a clinical pathology course for nursing students: A technology acceptance model approach. *PloS one*, 16(3), e0247819.
- Iftakhar, S. (2016). Google classroom: What works and how. *Journal of Education and Social Sciences*, 3(1), 12-18.
- Wijaya, P. S. M. (2006). Pengaruh computer self-efficacy dan task-technology fit terhadap penerimaan penggunaan Internet. *Jurnal Riset Akuntansi dan Keuangan*, 2(1), 37-52.