



Integrating Google Classroom in Teaching: Changing the Learning Culture in Higher Education during a Pandemic

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ABSTRACT

Technology integration is a benefit for students to learn differently to achieve goals and create the most important part of student life today. Google Classroom is a trend of blended learning in higher education that changes the strategy of delivering learning and teaching. The aim of this exploratory study is to investigate whether or not this application can be covered to develop or support learning in a Bachelor level of English Language Education program to facilitate student achievement. The test design was used to analyze student performance and the survey of perceptions of the use of Google Classroom was evaluated statistically using a questionnaire. The results revealed that students who participated in answering questions at the pretest found that there was no significant difference between the control group (45%) and also the experimental group (45.45%). In the posttest results, the two groups obtained an increase within the value of the final examination, however the contribution of 5th-semester students with the utilization of Google Classroom specifically benefited those with higher grades (81.82%) compared to third-semester students (70%). Moreover, the results of the student perceptions survey during this study indicate the use of Google Classroom is observed positively as a technology which will modernize dynamic learning and engagement, stimulate critical thinking and their participation if used suitably for learning functions.

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INTRODUCTION

Currently, students have fully grown up within the vast world of technology

including the utilization of cellphones and the internet that may be found anywhere. Oblinger (2003) refers to,

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"Gen-X, Millennial, Net Generation in the Age of Revolution. They can absorb information quickly from various sources simultaneously (Duffy, 2008). They learn on what is delineated by (Prensky, 2003) that students are ready to communicate through instant electronic messaging friends and expect quick responses and feedback. Net Generation only needs to move the mouse on the board or just touch the computer screen to determine the cyber world while not having to leave the house (Gunawan & Sunarman, 2018).

John & Brown (2000) in his article "Growing up Digital": states how the Web functions as an ecology that describes the atmosphere for work, education, and also the way people learn. Brown further declared that technological advances require the complex and diverse interplay of new adaptations between one community and another akin to global life should be welcome by global thinking, the breadth of insight and knowledge or data, and mastery of technology to face the future and advances within the technical field incidentally it is growing fast.

Technology serves as an available tool for college students to explore their learning experiences and build bridges to connect their reading texts to real-world situations that are simulated and presented visually by computer programs. Technology will facilitate students who learn differently, achieve their goals and make a very important part of today's student life. Integrating technology into learning will encourage their learning to be motivated (Fredricks, Blumenfeld, & Paris, 2004).

Today's modernization of technology, particularly the development of information technology has modified the academic paradigm of the offline learning model to an online-

based learning model. This requires educational institutions to innovate and perpetually build a breakthrough within the world of education. Generations of millennia in the industrial era 4.0 and university 5.0 are currently ready to perform the learning process anywhere (Oblinger, 2003) without having to direct meeting.

Direct learning has been happening since preschool to high school and even universities so far. The direct lecturing model is a part of learning wherever lecturers or academics perform routines similar to coming to class, introducing themselves, checking attendance, depositing learning plans and doing other alternatives activities. While, students do the same issue, attempt to come on time and follow the learning process (Iftakhar, 2016).

In the current pandemic era, providing sufficient time to carry out the learning process for students online is a tough struggle for the University of Muhammadiyah Enrekang. The pressure of the Tri Dharma Perguruan Tinggi which is the three demands of higher education in Indonesia, namely teaching, research and community service coupled with other supporting activities makes lecturers usually overwhelmed interacting with their students. As a result, hands-on teaching time is usually combined with previous meetings and spent through assignments or perhaps the lecturer only provides core modules for students to study. Learning outcomes using modules aim to organize students with the critical thinking and study skills required for their degrees and careers.

The use of modules in the learning process is a little thwarted by a variety of issues, as well as student feedback that is lacking and attendance as low as attendance of 30-45% for each meeting (Fredricks et al., 2004). The low transfer

of knowledge by students from this learning model shows that students cannot achieve the desired learning outcomes (Jonas-dwyer & Pospisil, 2004). Students' experience of this learning methodology is basically passive and tiny absorption (Heaslip, Donovan, & Cullen, 2014; Mula & Kavanagh, 2009) is attributable to the pressure of scheduling courses and lecture halls. Similarly, even though results and absorption can be achieved in the classroom, students are unable to maintain information or transfer it to their own analysis (Numertayasa, 2018; Siau, Nah, Siau, Sheng, & Nah, 2006).

Academic reading and writing skills are the main subjects in the English Language Education Study Program at Universitas Muhammadiyah Enrekang, Indonesia. This course is extremely necessary for college students who have learning disabilities. Reading is considered the foremost vital skill and Writing rank second in the English language education curriculum. To illustrate, students are usually given extra learning and assignments during this course, as a result of they need to meet learning outcomes during this main subject field. Similarly, this course will be a reference in writing scientific papers in the kind of thesis writing. As a consequence, several students do not seem to be able to complete their studies on time because they are unnatural by basic skills in writing (Ismail, 2017; Ismail, Jabri, Rahmat, & Musdalifah, 2016). The complexity and restricted learning time of this course create the background of weak information for students who have underdeveloped learning abilities in college.

Reading and understanding English text materials is a vital requirement to support other subjects, whereas most students lack these reading skills

(Sarmita & Ismail, 2019). They usually spend most of their time encoding words, without understanding their reading (Therrien, 2004). Several found students intimate problem in reading comprehension, especially in summarizing, seeking information, responding to questions and sorting (Elihami & Ismail, 2017). In lectures, they are usually asked to finish assignments based on the reading text. If they still have the basic reading ability, they will have problem in learning the reading content quickly.

Salman Khan (2012) in his book "The One World Schoolhouse" revealed that "Education does not occur in a certain area between the teacher's mouth and student's ears. Education occurs in the space within each brain". This indicates that science is built by students through the learning process, not transferred from teacher to student or from lecturer to the student (Light & Polin, 2010). Similarly, teacher-centered learning is no longer appropriate for this generation, consequently it has an amendment to an additional student-centered approach, especially for college students involved in a variety of skills (Viridi, Halid, Kristianti, & Setiawan, 2017). Thus, there is no reason to be skeptical, avoid and reject the online learning model, study in the future; lectures need not be done in certain areas for information transfer.

The online learning system is a learning process organized through a web network whose development must contemplate the applicable regulations by prioritizing learning principles that must be encountered. The learning principles include learning outcomes that cover aspects of knowledge, skills, and attitudes; assessment strategy; and progressive learning activities and tasks so that students can set targets for

knowledge, skills, and attitudes built in the learning process; Ensuring a balance between the presence of lecturers giving material, social interactions, challenges or cognitive burdens (Alkaff, Qomarudin, Alkaff, & Bilfaqih, 2018). Likewise, the most essential aspect of online learning is security and learning management systems. In terms of security, students are more comfortable and expressing their ideas with their lecturers without fear regarding being bullied with other participants (Holley & Steiner, 2005). Additionally, online learning extends the learning community between one student and another student in having better access to communication than face-to-face discussions that are restricted by space and time.

The online learning system allows every subject provide substantial material in the kind of video recordings, slideshows and weekly assignments that have become predetermined deadlines and various scoring systems (Alkaff et al., 2018). Through learning online, it is hoped that students will develop their abilities in an exceedingly better direction; one in every of the abilities that are expected to develop is the ability to put in writing and skim priority.

Technology is a vital component of the education system, nonetheless integrating technology into the curriculum and learning process is still often separate. However, most education specialists agree that the globe of education should be integrated with technology, not as a separate subject or simply as an associate occasional project, nevertheless as a tool to expand student learning on associate current basis (Linda Starr, 2016). The encounter, of course, is a way to notice methods to use technology, facilitate students practice it, and which does not take time from core courses. However, for many lecturers,

presenting technology in the learning process is an additional challenge and needs private expertise. To integrate technology-based learning into the curriculum or syllabus, lecturers are required to find free space and time to learn to apply and understand the terminology required. Thus, technology can be useful as a good tool for lecturers and students in the learning process.

This study is expected to contribute to the literature on various effective teaching methodologies, expressly to assist lecturers and students in gaining expertise victimization technology in the learning process. Google has offered simple ways to assist integrate technology into the learning class routines of Google Classroom (Iftakhar, 2016). Google classrooms are one type of application that is suitable to be implemented because it can be a structured classroom application in the learning methods that exist today. Google classrooms can be used as programs for lecturers to create digital classrooms for students to interact with lecturers and their peers (Phan, 2015). This application is free that integrates e-mail and documents to keep it stored. The lecturer will transfer files, videos, links, announcements, and assignments to be requested and seen by students. Document files can be edited and shared with students to learn collaborative skills (Dicicco, 2016). Once students complete a task, they can send it by posting it. This program could be mobile-based application which will be accessed using any device anywhere (Foti, Drive, & Ave, 2014), and convenient for lecturers and students. The Google platform allows students to chat and discuss topics learned in class, and lecturers can view student discussions, and post comments. Different tasks can be posted such as video segments,

PowerPoint presentations, and other documents. Students can visit the site <https://classroom.google.com> or can download the application via the Play Store on Android or through the app store in IOS with the Google Classroom keyword (Mastoni & Rahmawati, 2019). The use is free of charge so that utilization can be done as needed.

Based on the review of this research article, several studies have been found concerning technology-based teaching. This study attempts to investigate students' perceptions of effective interactive teaching using the Google Classroom application. This study emphasizes to lecturers that their teaching approach will have an effective influence on student learning and engagement.

This study explores the use of Google Classroom as a teaching and learning program. While the specific objectives include: 1) to evaluate the effectiveness of student learning outcomes in learning Reading courses through the integration of Google Classroom; 2) to evaluate student responses to Google Classroom integration into the learning process. This study gives students the opportunity to comment on their perceptions about using Google Classroom.

METHODOLOGY

1. Instructional Procedures

In considering the application of educational technology in the learning process, it is expected to reduce the gap in the information provided to students. At present, a lot of information is being conveyed to students in class but the information is not captured correctly. Formerly, students who do not attend the class cannot capture the additional

information that has been delivered in the classroom through slides, chalkboards, and responses to questions raised by the lecturer. This sometimes frustrates and experiences an uncertainty about the content being taught. The learning process comes and passes without a trace in the minds of students.

The technology used in this study is Google Classroom. To operate, questions, links, PowerPoint, videos, documents, games, teaching materials, and quizzes are written to be seen visually and learned by the class. Students study and complete work through their computer or android anywhere, such as answering questions, PowerPoint, Google documents. In general, Google's classroom learning activities include: Introducing Google Classroom; introduce questions and how to respond; teaching vocabulary; analysis and activities for writing news or information; watch learning videos or news and browse with google doc; and take notes or summaries of the course. The concept is to encourage students to be more active without taking a lot of face-to-face time at classroom, to promote student involvement which can make classes more interesting (Cunningham, 2008), and to maximize interaction and introduce innovative pedagogy in learning (Mula & Kavanagh, 2009).

Determining student responses to the effectiveness of technology in the learning process, the fifth-semester students who take the Reading in Professional Context course are required to register with the Google Classroom application, whereas the third semester does not use Google Classroom to support in their learning process. During this study, a series of the identical questions were given to the two

semesters. However, for the third semester, lectures use traditional or face-to-face presentation approaches, such as slides (PowerPoint) by integrating the questions at each meeting. These questions are given regularly throughout the meetings; two-five questions are examined to be responded to verbally in order to provide feedback to students regarding their understanding. Evidently, student participation in responding to verbal questions is not optimal due to reasons for inequality between students, awkwardness in communication and limited face-to-face time in college.

Meanwhile, in the fifth semester of this study, Google Classroom was integrated into the teaching and learning setting. Lecturers create classes at the Google Classroom, and then invite students who are registered in the fifth semester through the e-mail address or class code from the Google Classroom that has been created. Generally, learning activities are often uploaded using various options (Nasir et al., 2019), such as create Announcement, Assignment, and Question (Appendix 1). Through the button on Google Classroom, student activities appear from reports provided in the Google Classroom class. If students have uploaded the results of their work or the results of a questionnaire found in the Google Classroom, then there is a Done report on the Google Classroom class page (Gunawan & Sunarman, 2018).

This application provided feedback to students on their understanding, however more importantly; tolerate lecturers to change presentations dynamically to reflect students' understanding or misunderstanding. When every question is displayed, students have a specified time to respond. After the deadline has passed as

an indication of the end of the assignment collection, Google Classroom or Lecturer will not tolerate the delay. Complete this application, students are required to appreciate time more and lecturers will see how disciplined students are in presence lectures. During this semester, the reaction rate and response are much completely different (responding 100%), and therefore every student's response is captured because it allows feedback via post directly to this application discussion forum. Thus, when students experience difficulties in understanding the assignments given and want to learn other material or topics, they can discuss in the Google Classroom forum, therefore that communication can continue even if they do not meet each other. Thus, when students realize difficulties in finishing tasks and wish to discuss different topics more, they will discuss within the Google classroom forum. This technique keeps the communication going while they do not meet one another.

2. Measurement Procedures

This study analyzed student responses to the Reading in professional Context course using Google classroom. The subjects of this study were the fifth-semester students totaling twenty-two students and the third semester that amounted to twenty students as controls. To answer the research questions, data were collected through questionnaires and quizzes response using a Google form. The quiz is given when students participate in learning using the Google classroom on Fifth-semester students. While, in semester three (as a control), students respond verbally to quizzes and do not have the possibility to answer questions using technology. Whereas the student

response questionnaire was covering twelve questions was given to the fifth-semester students who had attended learning using Google classroom. Student questionnaire responses contain items that contain effects regarding student learning and the way to observe student progress, items related to motivation, involvement, and ability to give some thought to the questions asked. This questionnaire additionally contains negative responses such as 'class dynamics not contributing to the utilization of Google classroom. Qualitative and quantitative methods are used to gather student opinions.

FINDING AND DISCUSSION

1. Student behavior in finding information

Obtaining information on relevant undergraduate level students to complete tasks such as research, articles require adequate reference resources. Online-based resources are easy,

creative and user-friendly information access (Alberth, Mursalim, Siam, Suardika, & Ino, 2018; Foti et al., 2014; Light & Polin, 2010) and are also the choice of today's students. From a teaching perspective, the information indicates that online media has an influence that can be used as a source of learning (Light & Polin, 2010; Silva et al., 2014; Wijaya, 2016). The tendency of students to get the information needed from online media will be very useful as long as they understand the ways and capabilities to ensure the information obtained is the source of information that can be accounted for (Abdel Meguid & Collins, 2017; Stagg & Lane, 2010). Based on the results of the pre-class survey, most students (60%) in the control group and (68.18%) in the experimental group used the Google application as their first search engine, with only 15% in the group control and 9.09% in the group experimental uses Wikipedia and 10% in the control group and 13.64% in the experimental group students use Google Scholar (Table 1).

Table 1. When working on an assignment, I will start by searching via...

Searching via...	Percentage Responses	
	Semester 3 (control), N=20	Semester 5 (experimental), N=22
Google	60	68.18
Google Scholar	10	13.64
Wikipedia	15	9.09
Yahoo	10	4.55
A Library Catalogue	0	-
Journal database	0	4.55
Others (Ask, Bing)	5	-
	100	100

Table 2 Show one statement that you most agree on based on the choice statement in table 1.

Statement	Percentage Responses	
	Semester 3 (control), N=20	Semester 5 (experimental), N=22
The data base was easy to navigate	40	54.55
The search was difficult to explore	5	4.55
Information obtained was useful	30	22.73
Search was as easy as Google	10	4.55
The information has quality results, ease of use and higher relevance than Google	10	13.64
I didn't get useful information	5	0
	100	100

The data in Table 2 shows that most students have used the database and obtained useful information, and only a small percentage of students have

difficulty and have not taken full advantage of the functionality of this information resource.

Table 3 Students have used Domain Email via...

Domain Email	Percentage Responses	
	Semester 3 (control), N=20	Semester 5 (experimental), N=22
G-mail	70	72.73
Yahoo	20	22.73
Webmail (ac.id)	0	-
Others	0	-
Not using email	10	4.55
	100	100.00

Subsequent surveys to find out how many students use e-mail account in relation to the level of their information literacy and are used to focus in the classroom learning opportunities to align with the use of Google Classroom. Table 3 shows that the majority of the fifth-semester students (72.73%) admit that they use G- Mail account before taking the class, and as much as 22.73% using a Yahoo account and a part (4:55%) do not have email. This pre-

survey information provides valuable hope regarding the utilization of Google Classroom in learning, particularly students in the 5th semester and lecturers in improving the standard of learning. From a teaching perspective, it is necessary to discover the behavior and competency of students in relation to the use of technology and approve that lectures are delivered appropriately. In a broader prospect, this information is useful for identifying behavioral trends

to design future learning models (Stagg & Lane, 2010).

2. Analysis of Student Examination Performance

A comparative analysis is carried out to ascertain whether the use of Google

Classroom in the classroom learning process can improve student performance. The comparison could be comprehended from the test results for subjects Reading in Professional Context as revealed in Figure 1.

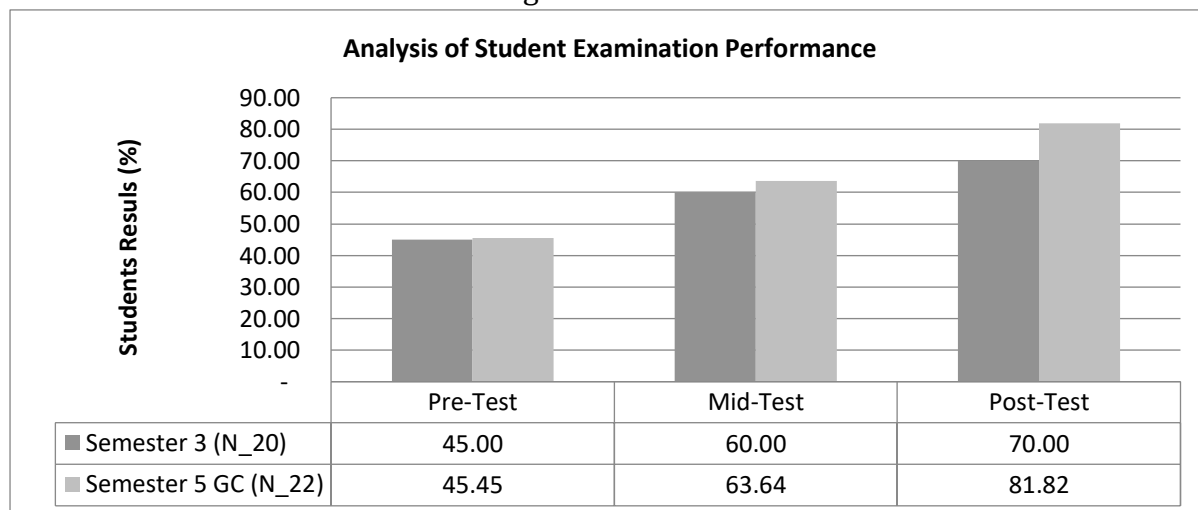


Fig. 1. Comparison between Control Group (n₂₀) and Experimental Group with Google Classroom (n₂₂) test results for Reading courses in the English Language Education Study Program.

Figure 1 shows a comparison of the average exam results for 3rd-semester students and 5th-semester students (with Google Classroom). Examination of the results on the Pre-Test showed no significant differences, at this stage, there was no difference in performance for the two tests between the control group and the experimental group (Mean Score: 45% versus 45.45%). Whereas the results of their course on examining in the Mid-Test in both groups, showing a comparison of test performance even though it did not differ significantly from the effect of a comparison of 60% on the control group and 63.64% on the experimental group (figure 1). When both of these groups (semester 3 and semester 5 with Google Classroom) on the results of the final exam scores increased, but the involvement of students with the use of Google Classroom was especially

beneficial for them. Figure 1 shows that the Experiment group with the Google Classroom application achieved a higher overall test score (81.82%) compared to the third-semester students (70%).

These findings indicate that students feel the use of Google Classroom education technology significantly increases the understanding of the material presented in the classroom by looking at the results of the exam. However, students who do not use Google Classroom in the third semester are still able to contribute to responding to the exam through a direct presentation. This pedagogical approach remains beneficial for them, even though they are unable to answer all questions verbally (Mula & Kavanagh, 2009). This is also supported by the results of other studies (Draper & Brown, 2004).

Therefore, this allows students to have choices in learning to learn the

appropriate material. Technology can help students, who learn differently, achieve their goals. This has convert an energetic part of the lives of students today, so integrating technology into learning will encourage their learning in a motivated way (Fredricks et al., 2004).

3. Student Evaluation Questionnaire

In the evaluation questionnaire, students are required to answer by choosing the answer option from "strongly agree" to "strongly disagree" on a five-point Likert scale. The questionnaire was given after the

application of the Google Classroom to fifth-semester students to measure subjective opinions on 12 items of questions which included themes about stimulation, motivation, involvement in learning, participation, and use of applications (Table 4). The questionnaire contains positive and negative statements that are designed in such a way as to reflect the required domain. This survey is distributed to students posted via Google forms for easy analysis. This analysis is expected to help make recommendations for future changes in teaching methodology.

Table 4. Response rates for using Google Classroom in lectures

Questionnaire Statements	Total Responses (%)					Average Rating
	5 (strongly agree)	4 (agree)	3 (neither agree nor disagree)	2 (disagree)	1 (strongly disagree)	
1. I am more interested in attending lectures where Google Classroom is integrated.	22.73	68.18	4.55	4.55	0	4.00
2. The use of Google Classroom in lectures can be intellectually stimulating	13.64	63.64	13.64	4.55	4.55	3.69
3. Google Classroom is easy to use	31.82	54.55	9.09	4.55	0	4.04
4. I feel more comfortable in interacting with my classmates and lecturers	9.09	77.27	4.55	4.55	4.55	3.73
5. Google Classroom in lectures increases my understanding of Reading in Professional Context courses.	13.64	63.64	9.09	9.09	4.55	3.64
6. Google Classrooms contribute effectively and encourage more active learning than usual.	18.18	63.64	13.64	4.55	0	3.87
7. Questions submitted using the Google Classroom must be carefully considered before being answered	13.64	72.73	4.55	4.55	4.55	3.78
8. Google Classroom can improve problem solving and critical thinking skills	18.18	54.55	18.18	9.09	0	3.73
9. Google Classroom does not provide an advantage in helping us develop prior knowledge	0	4.55	13.64	72.73	9.09	2.09

10. The use of Google Classroom does not make an effective contribution in lectures and is only a waste of time, and it will be better if the time spent is used by lecturers to provide courses through direct face-to-face.	4.55	4.55	4.55	68.18	18.18	2.04
11. I prefer if participating in answering quiz questions can be judged based on questions regardless of whether my answer is right or wrong.	9.09	27.27	9.09	36.36	18.18	2.67
12. I want to see the use of Google Classrooms in more of my classes going forward.	13.64	72.73	4.55	4.55	4.55	3.78

From the analysis of Likert responses to questionnaire items, it was clear that students preferred Google Classroom interactive lectures. Table 4 indicated the details of the questions from the responses given in the questionnaire statement. Student questionnaire responses showed they felt "more interested" (90.91%) when Google Classroom was integrated with lectures, "intellectually aroused" (77.27%) in the learning process, "easy to apply" and "more comfortable interacting" (86.36%) in lectures through the use of Google Classroom. The majority (77.27%) of students were able to "improve understanding" in lectures especially in the Reading in Professional Context course and were able to "contribute effectively in learning" (81.82%) and encourage more active learning than before. In answering questions, students can "think carefully" (86.36%) in responding to the questions asked. This is in line with the findings that students are able to improve skills in "problem-solving and critical thinking" (72.73%).

This view is evidenced by the majority of students disagreeing (81.82%) assuming that Google

Classroom integration in learning does not benefit the development of knowledge. As well as, the average student disagrees (86.36%) by assuming that "the use of Google Classroom is a waste of time." Most students (54.55%) want the answer to that question to be based on what it is, but 36.36% of students disagree if this assessment scheme is applied. Overall (86.36%) students recommended the integration of learning with Google Classrooms can be used more often in other classes or subjects.

Based on student responses, it was initiated that Google Classroom integration can make lectures more interactive (Heaslip et al., 2014; Penuel, Boscardin, Masyn, & Crawford, 2007; Stagg & Lane, 2010), student-centered and effective (Abdel Meguid & Collins, 2017; Penuel et al., 2007). This method makes students more involved in their own learning material. Using Google Classroom technology in lectures is an effective teaching method because positive feedback from students is very encouraging and considers it a valuable teaching methodology (Duffy, 2008). From the researchers' personal point of view, the relationship between students and lecturers has increased due to the

Google Classroom strategy; this is evidenced by the student's response to the questionnaire and the results of the semester exam evaluation. Their engagement and attention in the learning process gradually increase as recorded in the Google Classroom storage file can be displayed on the screen. This method supported lecturers to assess the level of understanding of students, knowing the number of respondents who participated and identifying areas for further development.

This study illustrated that Google Classroom technology has the potential to enhance student learning experiences and to increase their engagement and enthusiasm. With a variety of cultures, learning approaches, and background knowledge (Dicicco, 2016), we need to ensure that future learning of students must be prepared for the intellectual challenges of varied and innovative lecture styles.

CONCLUSION

This study reports the results of some positive benefits that may be obtained through the use of Google Classroom technology in lectures. Supported the results of the analysis of student feedback, they view the use of Google Classroom Technology is a valuable experience in enhancing their understanding in the course. Through student responses, it absolutely was found that questions or assignments were strategically placed in every course to help students to be more attentive, discipline, more confident and more motivated to learn. The shortcomings and weaknesses faced by students allow lecturers to immediately see the results of feedback sent through the Google Classroom application and diagnose

these weaknesses and provide solutions instantly. This methodology provides a clear description of what they need to learn, what they can answer, and what they need to improve. This technology makes the class more flexible and very acceptable to students even though it requires a lot of preparation by the lecturer.

Technology provides ways to support education and provides opportunities for lecturers to be more artistic in developing classroom activities and student involvement. This study provides preliminary evidence for further research on using Google Classroom within the learning process and also the opportunity to expand sample size especially in groups of larger students and completely different disciplines.

Disclosure

The authors report no conflicts of interest in this work.

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