GOOGLE CLASSROOM AS A DIGITAL TOOL IN TEACHING AND LEARNING: PPISMP STUDENTS' PERCEPTION

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Abstract

The current development of information technology has changed the paradigm of society especially the lecturers, teachers, and also students. Education is one of the fields that is getting a significant impact within this scenario, where education is a process of communication and information from teachers to students and vice versa, that contains the information education, that sparked the birth of the idea of using e-learning. E-learning launched by Google, the Google Classrooms, is one of many e-learning systems that are currently used in the education field by the majority of students in Malaysia. Technology Acceptance Model (TAM) is a model of user acceptance of information systems and information technology assumes that there are two individual beliefs, they are the perception of benefit (Perceived Usefulness abbreviated as PU) and ease of use (perceived ease of use, abbreviated as PEOU). Therefore, this study was developed by adopting the model of TAM to see the perception from both the perception in the TAM on the use of Google Classroom by some Semester 2 PPISMP students. The population of this research is the students who are already using Google Classroom in the lecture. Data obtained as much as questionnaires distributed by using purposive sampling technique to 79 students in the Semester 2 PPISMP Programme. Descriptive analysis using SPSS for this study showed that there is strong positive feedback on the students' perception of the use of Google Classroom in their learning process in IPG. Students agree that Google Classroom is useful, and they are satisfied with the use of Google Classroom as an online tool in the learning process. In a conclusion, this research found out that Google Classroom is a suitable medium as the learning tool in the teaching and learning process.

Keywords: Google Classroom, IPG, Learning Process, PPISMP

GOOGLE CLASSROOM SEBAGAI PLATFORM DIGITAL DALAM PENGAJARAN DAN PEMBELAJARAN DIGITAL: PERSEPSI SISWA GURU PPISMP

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Abstrak

Perkembangan teknologi maklumat semasa telah mengubah paradigma masyarakat terutamanya dalam kalangan para pensyarah, guru, dan juga pelajar. Pendidikan adalah salah satu bidang yang mendapat kesan yang signifikan dalam senario ini memandangkan pendidikan memerlukan pengaliran proses komunikasi dan maklumat dari guru kepada pelajar dan sebaliknya, yang melahirkan idea menggunakan e-pembelajaran. E-pembelajaran yang dilancarkan oleh Google iaitu *Google Classroom*, adalah salah satu daripada sistem e-pembelajaran yang kini digunakan secara meluas oleh para pelajar dalam bidang pendidikan di Malaysia. Model Penerimaan Teknologi (TAM) merupakan model penerimaan pengguna terhadap sistem maklumat dan teknologi berasaskan dua kepercayaan individu iaitu persepsi faedah (PU) dan kemudahan penggunaan (PEOU). Dengan mengadaptasikan model TAM, kajian ini dijalankan untuk melihat persepsi terhadap penggunaan *Google Classroom* oleh pelajar Program Persediaan Ijazah Sarjana Muda Perguruan (PPISMP) Semester 2. Populasi kajian ini adalah pelajar yang sudah menggunakan *Google Classroom* dalam proses pembelajaran sepanjang 2 semester. Data yang diperolehi melalui borang soal selidik yang diedarkan dengan menggunakan teknik persampelan bertujuan kepada semua pelajar PPISMP Semester 2. Analisis deskriptif menggunakan SPSS bagi kajian ini menunjukkan terdapat maklum balas yang sangat positif terhadap persepsi pelajar berkaitan penggunaan *Goole Classroom* dalam proses pembelajaran mereka di IPG. Pelajar bersetuju bahawa *Google Classroom* sangat berguna dan mereka berpuas hati dengan penggunaan *Google Classroom* sebagai alat dalam talian bagi proses pembelajaran. Kesimpulannya, kajian ini mendapati *Google Classroom* merupakan medium yang sesuai sebagai alat pembelajaran dalam proses pengajaran dan pembelajaran pelajar.

Kata Kunci: *Google Classroom*, IPG, PPISMP, Proses Pembelajaran

1.0   Introduction

The learning activities are educative message transformation processes in the form of learning materials from learning resources to learners. Learning resources in the learning activities are lecturers and the messages delivered are the learning materials received by the receiver of the message, namely students. In the process of learning to communicate the message of the lecturer to the students, the messages need to be received well to affect their understanding and induce changes in their behavior (Anshari et al., 2017). Thus, the success of learning activities is dependent upon the effectiveness of the communication process that occurs during the lesson (O'Flaherty et al., 2015).

Policy on home-based learning had run for several months since the Covid-19 outbreak emerged in Malaysia. It applied to most of education level and other informal institution. Although schools are now reopening after Disember holidays with extra caution, government still concerning on the possibility of school closing if the situation become worst on how to make the educational program more effective to the students. There are several methods in carrying out learning process along home-based learning. Teachers shared information by Whatsapp, video call through Zoom, Google Meet, Webex or Teams, or other online learning platforms. Digital classes such as Kahoot, Edmodo, Scratch and Class Dojo, were some of many aimed to be used for the teaching-learning processes and one of the learning platforms that popular now is Google Classroom.

Google Classroom Google Classroom is an internet-based service provided by Google as an e-learning system (Martínez-Monés et al., 2017). This service was designed to help teachers create and distribute tasks to the students in a paperless way. Users of this service must have an account in Google. In addition, Google Classroom can only be used by schools that have Google Apps for Education. Google Classroom was used to facilitate the interaction of a professor or teacher with a student or students in the virtual world (Liu & Chuang, 2016). Lecturers freely hand out a scientific assessment and provide an independent assignment to the students. In addition, professors can also open space for online discussion for students. Google Classroom utilization can be made through multiple platforms, i.e., through computers and mobile phones. Lecturers and students can visit the website at https://classroom.google.com or download the app via Play Store on Android or iOS app store with keywords "Google classroom". The LMS usage is free of charge so that utilization can be performed as needed.

Google Classroom education is one of the features provided by Google Apps for Education (GAFE) which was released to the public on August 12, 2014. Google Classroom is an application that allows the creation of classrooms in cyberspace. Google Classroom can be used as a means for the distribution of tasks, assignment submission as well as assessment. Google Classroom can be downloaded without any charge by registering themselves on the Google account application for education. Google Classroom app is very useful for online teaching and learning, and can be obtained for free of charge, and can be used on any device. One of the sophistication of this application is that it can be used collaboratively with other groups. Izenstark &

Leahy, (2015) stated that there are so many advantages of using Google Classroom as one of the Learning Management Systems (LSM).

The approach to learning through Google classroom is a part of a strategy that uses technology to facilitate faculty and students in the learning process (Ocampo et al., 2017). In Google Classroom, lecturers can provide materials on the subject being taught. The lecturers can post some teaching materials, assign tasks for students, and upload the students' grades so that they can immediately see the scores obtained in the course. In addition, Google Classroom can be an alternative to postpone meetings when the lecturers are outside the city or are busy during class hours. Google Classroom also minimizes the costs incurred due to the use of more affordable stationery and other materials and can minimize time-released energy (Inoue & Pengnate, 2018). In short, the time and energy spent by Google Classroom users will be lesser than usual. However, one of the significant barriers to realizing the effectiveness of learning from online classes is that not all students have an online account. In addition, some students do not have smartphones or a data plan for attending online discussion sessions. As a result, the use of Google Classroom by the faculty of teacher training and education may not be optimally effective.

2.0   Literature Review

On March 11, 2020, the World Health Organization (WHO) announced COVID-19 as a pandemic. Government authorities around the world activate social distancing to prevent the spread of the coronavirus, the teaching and learning activity was done via online (Saputri, 2020). Online learning is able to build a comprehensive and interactive communication mindset to students and lecturers and can be a medium of information that can be accessed by the academic community without time, distance and geographical area (Sewang, 2017). One of the many reasons for the failure of not successfully integrating technology was that the administrators believed that 80% of their teachers were not technologically aware to use it effectively; hence, the project failed (Kaukab & Nayab, 2018). The weakness of google classroom applications is requiring students to have a laptop, tablet, smartphone, and gadget that supports the google classroom feature. Teachers must think it over to use google classroom as a teaching method because not all students have a laptop or android (Aulia Khairani et al., 2020). Students who have a smartphone are expected to not use their smartphone for playing game games and social media, but they should also use it for the learning process.

A review of literature on Google Classroom shows that several studies focus on the effectiveness of E-learning Moodle, Google Classroom, and Edmodo (Barir Hakim, 2016), optimization of using Google Classroom as a learning media (Soni et al., 2018), Google classroom as an alternative way to enhance learning quality (Sewang, 2017), and Google Classroom as a media for Improving Attainment of Graduate Attributes (Madhavi, Mohan & Nalla, 2018). Study by Gorra & Bhati (2016) concluded that most students in state colleges in Philippines are likely to use technology in classroom for the purpose of positive consequences supporting the view that use of technology helps

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in enhancing learning related activities in classroom. Most of the college students' agreed to use Google Classroom in their online learning.

Google Classroom helps the students in facilated and interacted with the teacher through a discussion or do an online learning activity assignment (Alim et al., 2019). They were happy and never bored in using the Google Classroom via their learning process. Students' benefits from the use of Google Classroom such us reduce the learning cost because Google Classroom is free and easy to access. Most of the students were being more disciplined in submitting the assignment that they got from the teacher (Saputri, 2020). They also found that Google Classroom could be the best medium to do online learning and prefer to use Google Classroom

In the Malaysian context, the use of this Google Classroom in the learning process is relatively new for both lecturers/teachers and students. This is not only the case at schools but also on campuses, especially at Institut Pendidikan Guru Kampus Kota Bharu, Kelantan. The management is encouraging lecturers and students to used Google Classroom but still few lecturers and students don't know very well about the use of it. Not all lecturers and students are familiar with and use this Google Classroom. Some lecturers prefer to use traditional ways of teaching because they probably are not familiar yet with how to operate the tools that required technology and the internet. However, most of the lecturers have used this application in their classrooms. This particular study investigated the students' acceptance who already experienced using Google Classroom in their class for learning since Semester 1 of the PPISMP Programme started last year. This study hopes to find out the students' acceptance of this application indicating whether using Google Classroom is helpful and practical for their learning process.

The objectives of this research are to identify the perception of students on the:

      i.   ease of access of Google Classroom.

     ii.   perceived usefulness of Google Classroom.

    iii.   perceived instruction delivery of Google Classroom.

    iv.   communication and interaction through Google Classroom.

     v.   student's satisfaction of Google Classroom.

    vi.   behavioral intention to use Google Classroom.

   vii.   actual system use of Google Classroom.

3.0   Methodology

The research applied a descriptive quantitative research design using a survey as the method of data collection. The population of this research is all students of the PPISMP Programme at Institut Pendidikan Guru Kampus Kota Bharu. The samples

were selected using the purposive sampling technique by which 172 students were selected as the samples. Data were collected using online questionnaires by using google form. The instrument of this research is a set of questionnaires adopted from the TAM design by Davis (1986). The online questionnaire contains statements from TAM in the form of a Likert scale divided into a scale from 1 to 5, namely Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. Indicator to measure the students' acceptance of Google classroom, namely: Perceived Usefulness, Perceived Ease of Use, Behavioral Intention to Use, and Actual Use.

Perceived Usefulness is the indicator to see the students' perception towards the application whether it is useful or not. Perceived Ease of Use is the indicator to measure whether the application is easy to use or not for the students. Behavioral Intention is the indicator to measure the students' acceptance using Google Classroom, whether they're interested or not. Actual System Use is the indicator to find out if the respondents are using the application frequently or on their daily basis. The only survey accepted responses until the number of respondents needed was accomplished. 79 students answered and or responded to the questionnaire after distributing the online survey among them for 2 months period. The data were analyzed with descriptive statistics. Then, the data were calculated to find out the level of acceptance by the result of the mean score of each indicator. Data were then interpreted using an interpretation of mean scores or the tendencies are shown in Table 1, as proposed by Wiersma (2000).

Table 1: Interpretation means scores of statistic descriptive

(Source: Adaptation from Wiersma, 2000)

Mean Score	Interpretation Level
1.00-2.49	Low
2.50-3.49	Moderate
3.50-5.00	HIgh

3.1   Pilot Study

To ensure the validity and reliability of the instrument, a pilot study has been conducted. This pilot study aimed to gain an overall picture of the quality of the questionnaire. In addition, it also aimed to verify the contents, specifically in terms of the format, language, writing, objectives, directives, spelling, as well as the reliability of the questions items on the Google Classroom. The pilot study that was conducted involved 32 respondents of male, N = 10, and female, N = 32 who are not included in the sample. According to Cooper & Schindler (2011), the appropriate number of respondents who fit in the pilot study should be between 25 to 100 people. A reliability test and reliability analysis were performed using the SPSS program and the Cronbach's Alpha achieved are

0.886. The value showed that the items in the questionnaire have high reliability and validity and can certainly be used.

3.2 Data Analysis

Descriptive statistics test used to describe the pattern of a sample as the frequency distribution, mean, median, and mode and measures of variability such as range, variance, and standard deviation (Sekaran, 2003). These studies were conducted in the form of descriptive data hence researchers decided to analyze the data based on quantitative methods. Data were analyzed using the program Statistic Package for Social Science (SPSS) version 19.0. The selection method of data analysis in this study was based on the research questions. The findings are presented in the tables with the calculation of the mean score.

4.0 Result and Discussion

The following data in Table 2 show the student's acceptance of the use of Google Classroom as a platform in blended learning from 79 participating students. The data were analyzed and calculated to find out the mean score and the interpretation level. The results of the interpretation level showed the students' acceptance of the use of Google Classroom as a platform in their learning process in IPG KKB.

Table 2: Students' Acceptance of the use of Google Classroom

Indicator	Sample	Minimum	Maximum	Mean	Interpretation Level
Perceived Ease Of Use (PE)	79	1	5	4.130	High
Perceived Usefulness (PU)	79	1	5	4.111	High
Perceive Instruction Delivery (PI)	79	1	5	4.150	High
Communication And Interaction (CI)	79	1	5	4.034	High
Student's Satisfaction (SS)	79	1	5	4.117	High
Behavioral Intention (BI)	79	1	5	4.215	High
Actual System Use (AU)	79	1	5	4.348	High

4.1 The perception of students on the perceived ease of access of Google Classroom.

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Based on Table 3, all score shows a high level of interpretation on the ease of access of Google Classroom with the highest mean is signing on to the Google Classroom component with mean of 4.354. Respondents strongly agreed that it is easy to sign in to the Google Classroom since it is integrated with a Gmail account which connects everything to it (Harjanto & Sumarni, 2019). Students and teachers may access all the features of Google Classroom in any form of gadgets, such as personal computers or smartphones showing how Google Classroom is very simple to be accessed.

Table 3: Mean scores for the perception of students on the perceived ease of access of Google Classroom.

Item	Mean Score	Interpretation Level
Signing on to the Google Classroom.	4.354	High
Accessing course materials.	4.316	High
Sending and receiving an assignment.	4.304	High
Submitting Assignment.	4.203	High
Navigating the system.	4.013	High
Easy to understand the system	4.139	High
Google Classroom requires no training	3.608	High
Google Classroom makes it easier to avoid future academic difficulties.	4.101	High

Next, the lowest mean value goes to the component of Google Classroom requires no training with a mean value of 3.608. The respondent believes that training should be provided to the students on how to use Google Classroom. Professional development and job-related training can be a source of despair for many people. Therefore, the management and also lecturer should pay more attention to providing necessary training on Google Classroom in helping the students well known on the use of the Google Classroom. The training provided will allow students to succeed in online learning and also expand knowledge among them. Lack of technical training and competency was preventing the schools from technology integration, thus the role of administrators is to facilitate the training and infrastructure for the lecturers and also students to enhance the use of technology with the students (Kaukab & Nayab, 2018). Teachers should also conduct a session The training conducted will help the students regarding the importance and use of Google Classroom.

4.2   The perception of students on the perceived usefulness of Google

Classroom.

Based on Table 4, all score shows high interpretation level on the perceived usefulness of Google Classroom with the highest mean is component of the feedback provided by the lecturer is useful, with a mean value of 4.215. Respondents strongly agreed that in terms of the usefulness of the Google Classroom, the feedback provided by the lecturer is very useful. One of the

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most important benefits of using Google Classroom is very possible to achieve an efficient online collaboration.

Lecturers can send notifications to their students to start an online discussion or tell them about certain online learning activities. On the other hand, students have the opportunity to give feedback to their friends by posting directly to the flow of discussions in Google Classroom (Alim et al., 2019). The feedback not just from the lectures, their virtual classmates could give them feedback directly if they need help once they have difficulties understanding an assignment or want to learn more about a particular topic discussed through the Google Classroom.

Table 4: Mean scores for the perception of students on the perceived usefulness of Google Classroom.

Item	Mean Score	Interpretation Level
Google classroom is an excellent medium for social interaction (lecturer vs students and students vs student) as demonstrated by this activity	4.000	High
Google classroom help me to submit an assignment on time	4.089	High
The quality of the learning activity was excellent.	3.886	High
The course activities helped me to examine issues, evaluate new ideas, and to apply what I have learned.	4.038	High
The feedback provided by the lecturer is useful.	4.215	High
The grading system in Google Classroom helps in monitoring my performance and understanding the current topic discussed.	4.013	High
The subject objective, assessment, and content were consistent with the aid of Google Classroom	4.177	High

Next, the lowest mean value goes to a component of the quality of learning activity that was excellent, with a mean value of 3.886. This result indicates that the respondent's opinion on the quality of learning activity needs to be improved by the lecturers. The content of the message/information delivered by the lecturers in Google Classroom is quite complete but this information still required more explanation from the lecturers, especially on certain tough topic These situations indicated that students saw the clear value of these technologies to promote collaborative and quality learning experiences (Heggart & Yoo, 2018). When the students do not understand the material posted, they immediately commented and asked each other. Some students have also been asked by the lecturers to meet them directly on campus.

4.3   The perception of students on the perceived instruction delivery of Google Classroom.

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Based on Table 5 below, all score shows high interpretation level on the perceives instruction delivery of Google Classroom with the highest mean of 4.215 which is lecturer communicated important course topics. Next, the lowest mean value goes to lecturer provided clear instructions on how to participate in course learning activities" with a mean value of 4.063. Respondents strongly agree that Google classroom improve the lecturers' and students' quality to use technology wisely, especially for the learning process, saving time, being environmentally friendly, overcoming the distance of residence, increasing collaboration among students, timeless communication, and as secure document storage for the course topics discussed (Ketut Sudarsana et al., 2019). This also helps in enhancing the student-lecturer interaction and communication by using this education-based application.

Table 5: Mean scores for the perception of students on the perceived instruction delivery of Google Classroom.

Item	Mean Score	Interpretation Level
Lecturer provided clear instructions on how to participate in course learning activities.	4.101	High
The lecturer communicated important due dates/time frames for learning activities.	4.165	High
Lecturer communicated important course topics.	4.215	High
The lecturer helped keep the course participants on task.	4.177	High
The lecturer provides feedback that allowed me to better understand the content of the course.	4.177	High
Lecturer provided clear instructions on how to participate in course learning activities.	4.063	High

4.4 The perception of students on the communication and interaction through Google Classroom.

Based on Table 6, all score shows high interpretation level on the students' perception on the communication and interaction through Google Classroom with the highest mean is 4.278 on the lecturers are friendly, approachable and could be easily contacted item. Some research calls for a more student-centered approach which Google Classroom provides based upon the knowledge that students are used to interacting online with others via cell phones, email, and social media with the lecturers (Ballew, 2017) showing how this application helps to increase the interaction through the learning process.

Table 6: Mean scores for the perception of students on the communication and interaction through Google Classroom

Item	Mean Score	Interpretation Level
I felt comfortable conversing through this medium for this activity.	3.987	High
The lecturer helped to keep course participants engaged and participating in productive discussions.	4.000	High
I felt comfortable interacting with other participants in this activity.	4.038	High
My point of view was acknowledged by other participants during this activity.	3.975	High
Lecturers are enthusiastic in teaching and explaining via Google Classroom.	3.924	High
Lecturers are friendly, approachable, and could be easily contacted.	4.278	High

Next, the lowest mean value goes to lecturers who are enthusiastic about teaching and explaining via Google Classroom with a mean value of 3.924. Without face-to-face interaction with students, lecturers find they must overhaul their teaching strategies. Therefore, the lecturer should put more concern into making an interactive platform of online learning to have active online learning (Guy Posey et al., 2010). The lecturer/instructor that will be in charge of teaching the class needs to send out materials, e-mail's, instructing the students on what they need to be doing. Lecturers and students who normally had difficulties in controlling their teaching and studying acts gradually found that the new learning environment required them to develop novel ways of teaching and learning

4.5 The perception of students on the student's satisfaction of Google Classroom.

Based on Table 7, all score shows high interpretation level with the highest mean are "Google classroom is my first choice inactive learning compare to other methods". Respondents strongly agreed and satisfy with the introduction of Google classroom as an active tool of learning and would recommend it to be applied to another appropriate subject. Most of the students are satisfy showing that Google Classroom is an effective learning tool (Shaharanee et al., 2016). Students can easily track their progress with online assessments in Google classroom, parents can check and monitor the performances and progress of their children easily and at their convenient time (Iliyasu Hussain & Libata, 2020)

Table 7: Mean scores for the perception of students on the student's satisfaction of Google Classroom.

Item	Mean Score	Interpretation Level
The subject met my personal goal through the medium introduced.	3.949	High
I would recommend this method of learning to be applied to another appropriate subject.	4.127	High
Google classroom is my first choice of inactive learning compare to another method.	4.241	High
I like the Google Classroom as a learning initiative and motivation booster.	4.152	High

Next, the lowest mean value goes to the subject who met my personal goal through the medium introduced, with a mean value of 3.949. Digital technologies allow students to explore extensively what they are learning by making the learning and teaching outside the classroom walls and the students' taught indicated satisfaction towards the learning activities in Google classroom (Iliyasu Hussain & Libata, 2020)

4.6 The perception of students on the behavioral intention to use Google Classroom.

Based on Table 8, all score shows high interpretation level with the highest mean is, it is worth to recommend the Google Classroom for other students, with the mean value of 4.329. The respondent agrees that Google Classroom is reliable, effective, and efficient in improving their access and attentiveness towards learning, activities conducted in Google classroom, hence changes students from passive to active learners. With online quizzes and assignments, students are not limited to what they are taught, they can explore other resources about the particular topic through online mediums, hence having a deeper understanding of the topic discussed in the class. Both students and teachers will assist to connect, work together, create assignments, grade students and post-lecture notes by applying Google classroom.

Table 8: Mean scores for the perception of students on the behavioral intention to use Google Classroom

Item	Mean Score	Interpretation Level
I intend to increase my use of the Google Classroom.	4.114	High
It is worth recommending the Google Classroom for other students.	4.329	High
I'm interested to use Google Classroom more frequently in the future.	4.203	High

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4.7 The perception of students on the actual system use of Google Classroom.

Based on Table 9, all score for the component of the perception of students on the actual system use of Google Classroom shows high interpretation level with the highest mean is, I use the Google Classroom frequently, with the mean value of 4.430. Findings by Al-Maroof & Al-Emran (2018) concluded that students prefer the engagement in Google classroom where the teachers have passive roles rather than being engaged in a class where the teachers have more active roles. Google Classroom also provides a streamline of communication and workflow for students with lecturers and vice versa.

Table 9: Mean Scores for the Perception of Students on the Actual System Use of Google Classroom

Item	Mean Score	Interpretation Level
I use Google Classroom on daily basis.	4.266	High
I use Google Classroom frequently.	4.430	High

5.0 Conclusion

This paper found out that overall students are satisfied and have a high interpretation level with the use of Google Classroom's thus show it is effective as an active learning tool. The research effort shows that we are constantly determined through observations, surveys, and analyses of student demography and course design to what leads to a greater student's satisfaction with the method of learning. This approach, in turn, will contribute to the training of online instructors in methods and the designing of educational support programs that allow students to succeed in the online environment. It is timely that google classroom's tools should be integrated into the teaching and learning of data mining software, not solely because it is a useful utility tool. More importantly, it is a pedagogical tool that will enhance the teaching and learning of data mining and related application.

Furthermore, the use of this application is effective. However, there are some technical constraints caused by several things including the students of any study group not able to access the account provided by the lecturers. In addition, some students have limited access to smartphones. Besides, Wi-Fi availability on campus is still limited. Some students do not have a suitable data plan for taking part in online discussions and some students even submit their assignments from their friend's account. In addition, the decision-makers of the higher educational institutions should take these results into their consideration in their future attempt to construct Google classroom infrastructure.

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References

Al-Maroof, R. A. S., & Al-Emran, M. (2018). Students acceptance of google classroom: An exploratory study using PLS-SEM approach. *International Journal of Emerging Technologies in Learning*, *13*(6), 112–123. https://doi.org/10.3991/ijet.v13i06.8275

Alim, N., Linda, W., Gunawan, F., & Md Saad, M. S. (2019). The Effectiveness of Google classroom as an Instructional Media: A Case of State Islamic Institute of Kendari, Indonesia. *Humanities and Social Sciences Reviews*, *7*(2), 240–246. https://doi.org/10.18510/hssr.2019.7227

Anshari, M., Almunawar, M. N., Shahrill, M., Wicaksono, D. K., & Huda, M. (2017). Smartphones usage in the classrooms: Learning aid or interference? *Education and Information Technologies*, *22*(6), 3063–3079. https://doi.org/10.1007/s10639-017-9572-7

Aulia Khairani, Afrianto Daud, & Mahdum. (2020). Students' Acceptance of the Use of Google Classroom as a Platform in Blended Learning. *Al-Ishlah : Jurnal Pendidikan*, *12*(1), 1–16. https://doi.org/10.35445/alishlah.v12i1.193

Ballew, T. D. (2017). *Teacher Perceptions of a Technology-Based Google Classroom*. Carson-Newman University.

Barir Hakim, A. (2016). Efektivitas Penggunaan E-Learning Moodle, Google Classroom Dan Edmodo. *Jurnal I-Statement*, *2*(1–6), 2.

Cooper, D., & Schindler, P. (2011). *Business Research Methods* (11th editi). McGraw Hill.

Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user information systems: Theory and results. In *PhDThesis - Massachussetts Institute of technology*. Massachusetts, United States.

Gorra, V. C., & Bhati, S. S. (2016). Students' perception on use of technology in the classroom at higher education institutions in Philippines. *Asian Journal of Education and E-Learning*, *4*(3), 92–103. https://ro.uow.edu.au/buspapers/874/

Guy Posey, Thomas Brugess, Marcus Eason, & Yawna Jones. (2010). The Advantages and Disadvantages of the virtual classroom and the Role of the Teacher. *2010 Southwest Division Science Institute Conference*, 1–15. http://www.swdsi.org/swdsi2010/sw2010_preceedings/papers/pa126.pdf

Harjanto, A. S., & Sumarni, S. (2019). Teacher's Experiences on The Use of Google Classroom. *3rd English Language and Literature International Conference (ELLiC)*, *3*, 172–178.

Heggart, K. R., & Yoo, J. (2018). Getting the Most from Google Classroom: A Pedagogical Framework for Tertiary Educators. *Australian Journal of Teacher Education*, *43*(3), 140–153. https://doi.org/10.14221/ajte.2018v43n3.9

Iliyasu Hussain, & Libata, I. A. (2020). Effectiveness of Google Classroom as a Tool For

TENIAT

Teaching and Learning: Students' Perception. *International Journal of Research and Innovation in Social Science (IJRISS) |Volume, IV*(IV), 51–54. https://doi.org/10.37628/ijebn.v3i2.1606

Inoue, M., & Pengnate, W. (2018). Belief in foreign language learning and satisfaction with using Google classroom to submit online homework of undergraduate students. *Proceedings of 2018 5th International Conference on Business and Industrial Research: Smart Technology for Next Generation of Information, Engineering, Business and Social Science, ICBIR 2018, November 2017*, 618–621. https://doi.org/10.1109/ICBIR.2018.8391272

Izenstark, A., & Leahy, K. L. (2015). Google Classroom for Librarians: Features and Opportunities. *Library Hi Tech News, 32*(9), 1–3. https://doi.org/10.1108/LHTN-05-2015-0039

Kaukab, A. A., & Nayab, I. (2018). Effectiveness of Google Classroom : Teachers '. *Prizren Social Science Journal, 2*(2), 52–66.

Ketut Sudarsana, I., Bagus Made Anggara Putra, I., Nyoman Temon Astawa, I., & Wayan Lali Yogantara, I. (2019). The use of Google classroom in the learning process. *Journal of Physics: Conference Series, 1175*(1). https://doi.org/10.1088/1742-6596/1175/1/012165

Liu, H.-C., & Chuang, H.-H. (2016). Integrating Google Classroom to Teach Writing in Taiwan. *Minnesota ELearning Summit.*

Madhavi, B. K., Mohan, V., & Nalla, D. (2018). Improving Attainment of Graduate Attributes using Google Classroom. Journal of Engineering Education Transformations, 31(3), 200-205.

Martínez-Monés, A., Reffay, C., Torío, J. H., & Cristóbal, J. A. M. (2017). Learning Analytics with Google Classroom: Exploring the possibilities. *ACM International Conference Proceeding Series, Part F1322*. https://doi.org/10.1145/3144826.3145397

O'Flaherty, J., Phillips, C., Karanicolas, S., Snelling, C., & Winning, T. (2015). The use of flipped classrooms in higher education: A scoping review. *Internet and Higher Education, 27*, 90. https://doi.org/10.1016/j.iheduc.2015.05.001

Ocampo, J. F. G., Quevedo, M. C. J. A. C., Perez, C. A. O., & Castillo, B. Y. M. (2017). Analysis of the use of Google Classroom, in the students of System Engineering of the Instituto Tecnologico de Mexicali. *European Journal of Multidisciplinary Studies, 2*(7), 60–62. https://doi.org/10.26417/ejms.v6i2.p60-62

Saputri, V. N. D. (2020). *Students' Perceptions Toward the Use of Google Classroom in Teaching and Learning Process.* Universitas Negeri Semarang.

Sekaran, U. (2003). *Research Methods For Business : A Skill Building Appproach* (Fourth Edi). John Wiley & Sons,Inc. http://www.wiley.com/college

Sewang, A. (2017). Keberterimaan Google Classroom sebagai Alternatif Peningkatan Mutu di IAI DDI Polewali Mandar. *Jurnal Pendidikan Islam Pendekatan Interdisipliner, 2*(1), 35–46.

Shaharanee, I. N. M., Jamil, J. M., & Rodzi, A. S. S. M. (2016). The Application of Google Classroom as a Tool for Teaching and Learning. *Journal of Telecommunication, Electronic and Computer Engineering*, *8*(10), 5–8.

Soni, S., Hafid, A., Hayami, R., Fatma, Y., Wenando, F. A., Amien, J. Al, Fuad, E., Unik, M., Mukhtar, H., & Hasanuddin, H. (2018). Optimalisasi Penggunaan Google Classroom, E-Learning & Blended Learning sebagai Media Pembelajaran Bagi Guru dan Siswa di SMK Negeri 1 Bangkinang. *Jurnal Pengabdian UntukMu NegeRI*, *2*(1), 17–20. https://doi.org/10.37859/jpumri.v2i1.361

Wiersma, W. (2000). *Research Methods in Education : An Introduction* (& A. & Bacon (eds.); 7th ed.). Boston.