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Google Classroom Acceptance Level of High School Students Using the Technology Acceptance Model

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Abstract: Learning activities in all Indonesian schools have been suspended since the Covid-19 pandemic occurred in early April 2020. Google Classroom as a popular and widely used application plays an important role in the distance learning process. However, it is not yet known to what extent the acceptance of these applications for users. The purpose of this study was to analyze the level of acceptance of the Google Classroom application through the Technology Acceptance Model for state high school students in Bogor City. This study uses quantitative methods through surveys that are analyzed descriptive statistics. The results showed that the level of acceptance of Google Classroom among state high school students in Bogor City was high. Almost all of the problem formulations can be responded to properly and six of the seven hypotheses can be proven by the existence of a positive influence on the relationship between variables. This research can be a reference for decision makers in high school level schools that the Google Classroom application can be used as a Learning Management System in distance learning during the Covid-19 pandemic, other conditions that do not allow direct learning, and blended learning.

Keywords: Google Classroom, Acceptance, High School Students, Technology Acceptance Model

INTRODUCTION

Learning activities as a series of communication systems are generally held directly. Teachers and students meet face to face in class. However, the Covid-19 pandemic that has spread to Indonesia has had an impact on the continuity of face-to-face learning at all levels of education. On December 31, 2019 an unknown pneumonia-like case was found in Wuhan, China. This case was caused by the corona virus, popularly known as Covid-19 (Herliandry, Nurhasanah, Suban, and Kuswanto, 2020). The Covid-19 pandemic has had an impact on face-to-face learning which has been stopped and distance l earning has started.

In the early days of distance learning, several problems were found. For example, teacher and student mastery of information technology is limited, expensive technological

devices, and poor internet networks (Adi, Oka, and Wati, 2021). Nonetheless during the Covid-19 pandemic, distance learning has been recognized as the most appropriate and safe form of teaching and learning (Hussein, Ow, Ibrahim, and Mahmoud, 2021). Distance or online learning is a channel of communication between teachers and students to interact in an educational context.

Google Classroom is the most widely used application for distance learning during the Covid-19 pandemic (Vynck and Bergen, 2020). Supported by the fact that this application is free, suitable for developing countries with limited financial resources, Google Classroom has become popular (Azhar and Iqbal, 2018). In Indonesia, Google Classroom is the most widely used Learning Management System (LMS). In Appbrain.com's notes (2021), Google Classroom is ranked first for the number of downloads in Indonesia. Likewise with the results shown by the Indonesian Survey Flow Institute (ASI, 2020) that during the Covid-19 pandemic, Google Classroom was the most widely used e-learning platform for distance learning (Fauzi, Wandira, and Hafid, 2021).

Google Classroom is an application developed by Google. As a popular Web 2.0 tool with many attractive features and applications, Google supports teaching and learning to be pedagogically, socially and technologically affordable (Wang, Woo, Quek, Yang, and Liu, 2012). Introduced in 2014 in Google Apps for Education, Google Classroom makes it easy for teachers to create and manage assignments quickly, provide feedback efficiently, and communicate more easily with classes of students (Shaharanee, Jamil, Rodzi, and Rodzi, 2016). As a new media platform, Google Classroom is an LMS that has a position as a solution in the target user group segment (Luik, 2020). This means that Google Classroom as new media can be a solution for conducting classroom-like communication by lecturers-students and teacher-students.

Interesting facts related to Google Classroom motivate researchers to examine the acceptance rate of this application. The purpose of this study was to analyze the level of acceptance of the Google Classroom application using the Technology Acceptance Model (TAM) for high school students in Bogor City. TAM is a model of user acceptance of information systems and information technology which is suitable for this study. This research is important to do to obtain data that shows the level of acceptance of Google Classroom by students as users, especially in terms of perceived usefulness and perceived ease of use. Both of these are the main factors that influence the recipient's behavior. This research is expected to be useful for academics, researchers, teachers, and policy makers in schools as a basis for determining the use of the Google Classroom application in distance learning.

Based on this description, the formulation of the research problem is as follows.

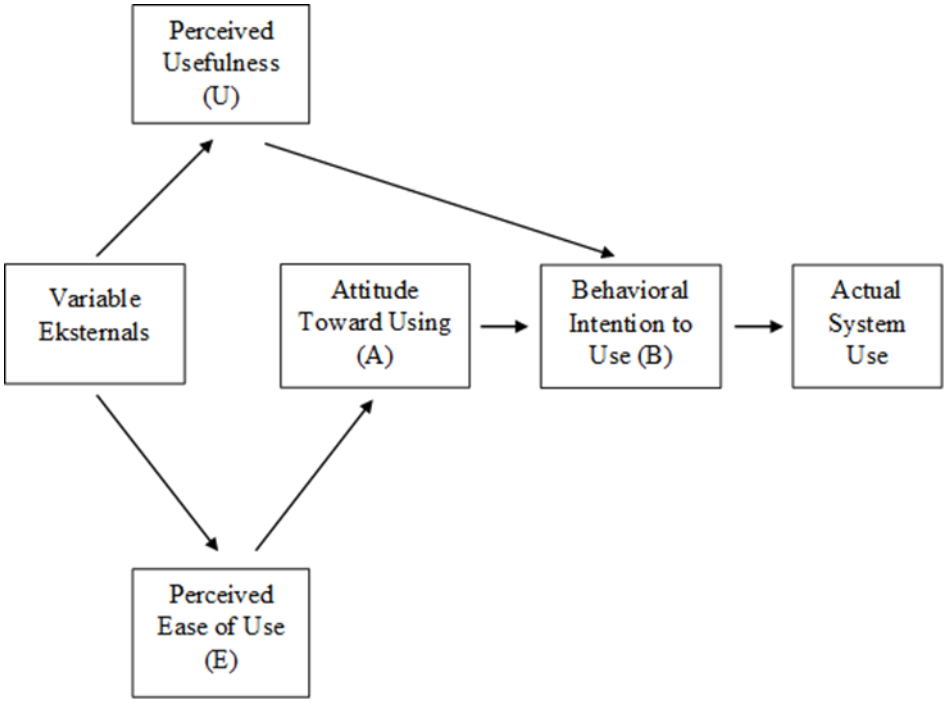
1. Does perceived ease of use (PEOU) have a positive influence on students' perceived usefulness (PU) of Google Classroom?
2. Does perceived ease of use (PEOU) have a positive influence on Google Classroom attitudes (ATU) by students?
3. Does perceived usefulness (PU) have a positive influence on Google Classroom attitudes (ATU) by students?
4. Does perceived usefulness (PU) have a positive influence on students' interest (BIU) in Google Classroom?
5. Does attitude (ATU) have a positive influence on interest (BIU) in Google Classroom by students?
6. Does perceived usefulness (PU) have a positive influence on Google Classroom user satisfaction (usability) by students?
7. Does perceived ease of use (PEOU) have a positive influence on Google Classroom user satisfaction (usability) by students?

LITERATURE REVIEW

This research is related to learning media which is a means of communication between teachers and students in the process of learning activities. In this case the Google Classroom application, a new media that is widely used as an LMS in many Indonesian schools. The degree to which the level of acceptance of the Google Classroom application by state high school students in Bogor City can be analyzed using the TAM model.

A. Technology Acceptance Model

Technology Acceptance Model is a model of user acceptance of information systems and information technology. TAM was first introduced by Davis in 1989 which is the result of an adaptation of Theory Of Reason Action (TRA) by Fishbein and Ajzen (1977). Based on TRA theory, TAM is used to explain individual acceptance behavior. The main purpose of TAM is to establish a basis for tracking the influence of external factors on beliefs, attitudes (personalization), and goals of computer users (Al-Maroof and Al-Emran, 2018). Figure 1 below shows a schematic of the main TAM elements.



Source: Surendran (2012:176)

Figure 1: Technology Acceptance Model (TAM)

According to the TAM concept, perceived usefulness and perceived ease of use are the most important determinants of system use. Both of these factors are influenced by external variables. The main external variables are social factors and political factors. Social factors include language, skills, and facilitating conditions. Political factors, for example, the impact of the use of technology in politics and political crises (Surendran, 2012). TAM explains 5 factors of individual acceptance of the use of information technology systems, namely perceived usefulness, perceived ease of use, attitude against use of technology, behavioral intention to use, and actual use of technology (Purwandani and Syamsiah, 2020).

Perceived usefulness describes the level of individual belief that using the system will improve performance. Perceived ease of use describes the level of individual confidence that the use of information systems is easy and does not require hard effort from the wearer.

Attitude toward using is an attitude of liking or disliking the use of a product. Behavioral intention to use is the level of use of a computer technology by someone who can be predicted from the attitude of the user's attention to the technology, such as the desire to add supporting peripherals, the motivation to continue using it, and the desire to motivate other users. Actual use is the use of the technology itself or the real conditions of using the information system.

This study uses the Technology Acceptance Model to analyze the degree of acceptance of the Google Classroom application by high school students in Bogor City with five variables. The five variables in question are perceived usefulness, perceived ease of use, attention to use, behavioral intention of use, and usability.

B. Research Hypothesis

The five TAM variables and the indicators for each variable form patterns of interrelationships that influence each other. Of the five variables formed seven research hypotheses. The following describes each variable and the hypotheses formed.

1) Perceived ease of use

Perceived ease of useaffect perceived usefulness, attitude toward using technology, behavioral intention to use, and actual use of the system. Perceived ease of use has a direct or indirect impact on perceived usefulness through attitude against use of technology (Fauzi, Wandira, and Hafid, 2021).

Based on this concept, the following hypothesis is made. H1: perceived ease of use (PEOU) has a positive relationship with perceived usefulness (PU) in using Google Classroom. H2: perceived ease of use (PEOU) has a positive relationship with attention to use (ATU) in using Google Classroom.

2) Perceived usefulness

Perceived usefulness illustrates that the technology used will be beneficial to its users. Research shows that perceived usefulness is related to usage. The relationship between perceived usefulness and attitude against use of technology, behavioral intention to use has consistent results (Fauzi, Wandira, and Hafid, 2021).

Based on this concept, the following hypothesis can be made. H3: perceived usefulness (PU) has a positive relationship with attention to use (ATU) in using Google Classroom.

3) Attitude toward using

Attention to useis a motivating factor that influences the intention to use a particular thing (Niqotaini and Budiman, 2021). In other words, attention to use can be used to predict the behavior of a person's intention to use or not use a product.

Based on this concept, the following hypothesis can be made. H5: attention to use (ATU) has a positive relationship with behavioral intention of use (BIU) using Google Classroom.

4) Behavioral intention to use

Behavioral intention to use is the level of use of a computer technology in a person which can be observed from the attitude of the user's attention to the technology. For example the desire to add supporting peripherals, motivation to continue using, and motivating other users (Hanggono, Handayani, and Susilo, 2015).

Based on this concept, the following hypothesis can be made. H4: perceived usefulness (PU) has a positive relationship with behavioral intention to use (BIU) using Google Classroom.

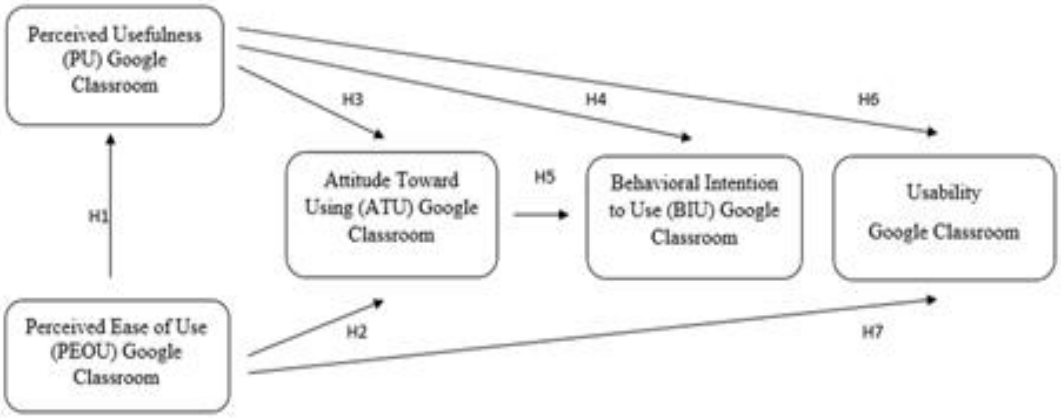
5) Usability

The term usability refers to the degree to which a product can be used by certain users to achieve specific goals effectively, efficiently, and satisfactorily in a given context of use. In addition, usability serves to measure the level of user satisfaction with a product (Setiawan and Wicaksono, 2020). User satisfaction is relevant to perceived ease of use and perceived usefulness as important factors in TAM. This can be shown by indicators that are the same or almost the same between the two.

Based on this concept, the following hypothesis can be made. H6: Google Classroom perceived usefulness (PU) by students has a positive influence on usability. H7: Perceived ease of use (PEOU) of Google Classroom by students has a positive influence on usability.

C. Thinking Framework

In summary, there are seven hypotheses of five variables. The hypothesis shows the relationship of one variable to other variables that influence each other. Figure 2 below shows the flow of this research framework.



Source: Picture of Research

Figure 2: Flow of Thinking Framework

Hypothesis 1 (the effect of PEOU on PU), Hypothesis 2 (the effect of PEOU on ATU), Hypothesis 3 (the effect of PU on ATU), Hypothesis 4 (the effect of PU on BIU), Hypothesis 5 (the effect of ATU on BIU), Hypothesis 6 (the effect of PU on usability), and Hypothesis 7 (the effect of PEOU on usability).

These five variables are variable X, while acceptance of the Google Classroom application is variable Y.

RESEARCH METHODS

The object of this research is acceptance of the Google Classroom application used by public high school schools in Bogor City. The subjects of this study were state high school students in Bogor City.

This study uses a survey method. The survey method is used to obtain data from certain natural places, researchers are involved in collecting data, for example by distributing questionnaires (Sugiyono, 2019). Researchers attempt to determine the relationship between variables based on data obtained from samples in a population.

This research paradigm is quantitative. Researchers attempt to analyze the relationship between several variables related to the problems that need to be answered, the theory used to formulate hypotheses, and statistical analysis techniques. The variables in this study include

perceived ease of use (PEOU), perceived usefulness (PU), attention to use (ATU), behavioral intention of use (BIU), and usability (U).

Collecting data in this study through a questionnaire. The researcher distributed questionnaires to state high school students in Bogor City which included the research sample, namely SMA Negeri 1 Bogor, SMA Negeri 5 Bogor, and SMA Negeri 10 Bogor. The questionnaire contains a number of written questions to obtain information from respondents. The instruments used to measure variables in this study are instruments that have been used in previous studies so that it is possible to increase the validity and reliability of measurements.

The population in this study were all students of SMA Negeri in Bogor City which consisted of 10 schools in the Bogor City area. When the research takes place in July-August 2022, the Odd semester of the 2022/2023 Academic Year. The sampling used is probability sampling with simple random sampling technique. The simple random sampling technique was chosen because the members of the population are considered homogeneous. The total population is known as 3000 people. With an error rate of 5%, researchers used the formula from Isaac and Michael to obtain a sample so that the number 342 people was obtained.

RESULT AND DISCUSSION

By using the Structural Equation Modeling (SEM) method and AMOS 25 software, the results obtained from the analysis of several criteria in evaluating the model and the influence shown in the model. Based on the output of the test equipment, the following data is obtained.

1. Validity Test Results

The results of the Validity Test illustrate that the criteria for evaluating the model and the effects shown in the model are all valid. Table 1 below summarizes the results of the validity test

Table 1: Validity Test Results

Criteria	Results	Information
X^2 (Chi Square Statistics)	0	Valid
CMIN	130,526	Valid
GFI	0.912	Valid
AGFI	0.912	Valid
TLI	0.939	Valid
CFI	0.955	Valid
Parsimony Fit Indicates	0.744	Valid
(PRATIO, PNFI, and	0.686	Valid
PCFI)	0.710	Valid
RMSEA	0.061	Valid
AIC (AIC, BC, BIC, and	196,526	Valid
CAIC)	199,351	Valid
	323,074	Valid
	356,074	Valid
ECVI (ECVI, HI 90,	0.576	Valid
MECVI and LO 90)	0.685	Valid
	0.585	Valid
	0.490	Valid
HOETLER	201	Valid

Source: Data of Research

Thus, based on the data from the test equipment it can be concluded that the model is fit.

2. Reliability Test Results

In contrast to the validity test which wants to know whether the indicators in a construct represent the construct, the construct reliability test wants to test the consistency of an indicator to measure a construct.

AMOS does not provide CR and VE values directly (Santoso, 2021). Therefore, to obtain CR and VE values using table calculations with Microsoft Excel.

The results of the Reliability Test provide an illustration of the consistency of the indicators to the constructs. Based on calculations using the CR and VE formulas, the indicators for each construct are in accordance with the guidelines so that it can be stated that all constructs are reliable. Table 2 below summarizes the Reliability Test Results.

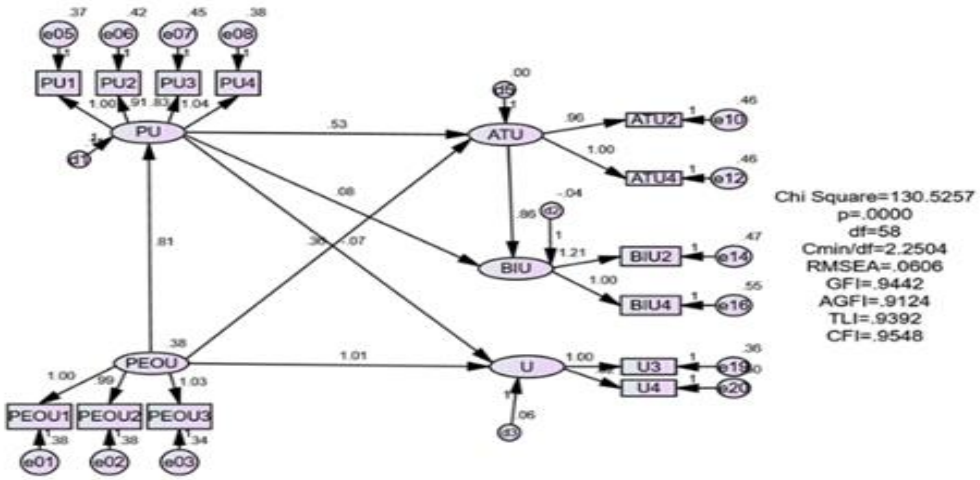
Table 2: Reality Test Results

Construct	CR	VE	Information
PEOU	0.880	0.563	Reliable
PU	0.695	0.310	Reliable
ATU	0.783	0.726	Reliable
BIU	0.487	0.676	Reliable
U	0.535	0.562	Reliable

Thus it can be concluded that in general the indicators have been reliable in measuring the PEOU, PU, ATU, BIU and U constructs.

3. Path Analysis Results

The path analysis results shown in Figure 3 below show the path coefficients and p-values for each hypothesis.



Source: Picture of Research

Figure 3: Path Analysis Results

Based on the analysis it can be concluded that the hypotheses H1, H3, H4, H5, H6, and H7 are all supported because these hypotheses have a path coefficient number that is greater than the p-value (0.0000), except for hypothesis H2 which is the path between perceived easy of use (PEOU) and attention to use (ATU). Hypothesis H2 indicates that the path coefficient (-0.07) is less than the p-value (0.0000). The difference in the variation in the number of path coefficients in each hypothesis shows a different effect from one variable to another. The least number of path coefficients is in the fourth hypothesis (H4), which is 0.08. The highest

number of path coefficients is in the seventh hypothesis (H7), which is 1.51. Table 3 below summarizes the results of the path analysis.

Table 3: Results of Path Analysis

Hypothesis	Track	Path Coefficient	p-value	Information
H1	PEOU! PU	0.81	0.0000	supported
H2	PEOU! ATU	-0.07	0.0000	not supported
H3	PU! ATU	0.53	0.0000	supported
H4	PU! BIU	0.08	0.0000	supported
H5	ONE! BIU	0.86	0.0000	supported
H6	PU! U	0.36	0.0000	supported
H7	PEOU! U	1.51	0.0000	supported

Source: Data of Research

4. Normality Test Results

The results of the Normality Test are seen from the Critical Ratio (CR) values of skewness and kurtosis. CR values that are in the range of -2.58 to 2.58, rounded up to -3 to 3, indicate that the data is normally distributed both univariate and multivariate. Based on these data, CR skewness and CR kurtosis values are in the range of -3 to 3. The lowest CR skewness value is on the BIU2 indicator (-1.363), while the highest CR skewness value is on the PU4 indicator (-0.171). The lowest kurtosis CR value is on the PU3 indicator (-2.754) and the highest kurtosis CR value is on the BIU4 indicator (-O.454). The multivariate kurtosis value obtained was 4.961, while the CR kurtosis value was 2.323. Thus it can be concluded that the data are normally distributed univariate and multivariate.

5. Linear Test Results

The output of AMOS 25 in this study on Regression Weights shows p-values, most of which are less than 0.05 with very small values (***). There are four p-values that appear. The p-value for the relationship between PEOU and ATU (0.011) and ATU-BIU (0.042) are both less than 0.05, indicating an influence. The p value for the PU to BIU relationship (0.824) and the PU to U value (0.718) are both slightly greater than 0.05, indicating no effect. So, it can be concluded that all indicators have a positive effect except for these two indicators.

6. T Test Results

T-test was conducted to prove the significant effect of the independent variables on the dependent variable. Significance of path analysis by comparing the value of p (probability) with a significant probability value obtained through calculation based on the formula.

T Count Formula:

$$\text{T count} = \frac{r\sqrt{n-2}}{\text{----------}} \quad (1)$$

$$1 - r^2$$

Information:
n = number of respondents
r = coefficient

The results of the analysis with the T test show that all hypotheses are significant, except for the second hypothesis (H2) because the calculated T value (-1.281) is less than the probability value (0.0000). Thus, almost all hypotheses prove that there is a positive influence from PEOU to PU, PU to ATU, PU to BIU, ATU to BIU, PU to U, and PEOU to U.

The results of the T test show that of the seven hypotheses, six are significant. The calculated T value of the six hypotheses is greater than the probability value. That is, the six hypotheses are proven to show that there is a positive effect. The second hypothesis (H2) is not significant because the T count (-1.281) is less than the probability value (0.0000).

In general, this study succeeded in proving the hypotheses based on Davis' theory of TAM. The Google Classroom application as a learning medium used by students during online learning has proven to be acceptable as an application that provides usability and ease of use, builds interest, attitude and student satisfaction. The following is a description of the results of research on each hypothesis in terms of Davis' theory.

Hypothesis 1. The results of the AMOS output on this hypothesis indicate that the ease of use (PEOU) of Google Classroom as an application that helps the learning process, is easy to access, and facilitates learning activities affects the use (PU) of the application by students to improve their performance in learning activities such as completing the task.

Hypothesis 2. The AMOS output results on this hypothesis indicate that Google Classroom's ease of use (PEOU) as an application that helps the learning process, is easily accessible, and facilitates learning activities does not affect students' attitudes (ATU) towards the application to feel happy and excited.

Hypothesis 3. The AMOS output results on this hypothesis indicate that the use of (PU) Google Classroom as an application that is easy to use, easy to learn, proficient in use, and saves time in learning activities influences the attitude (ATU) of students that the application is fun and makes them excited.

Hypothesis 4. The AMOS output results on this hypothesis indicate that Google Classroom's usability (PU) as an application that is easy to use, easy to learn, proficient in use, and saves time in learning activities influences students' behavioral intention or interest (BIU) to reuse the Google Classroom application .

Hypothesis 5. The AMOS output results on this hypothesis indicate that attitudes (PU) towards Google Classroom as a fun and exciting application influence students' behavioral intention or interest (BIU) to reuse the Google Classroom application.

Hypothesis 6. The AMOS output results on this hypothesis indicate that the use (PU) of Google Classroom as an application that is easy to use, easy to learn, proficient in use, and saves time in learning activities affects the satisfaction (U) of students who believe that everything in the application useful and the application can be mastered quickly.

Hypothesis 7. The AMOS output results on this hypothesis indicate that the ease of use (PEOU) of Google Classroom as an application that helps the learning process, is easily accessible, and facilitates learning activities affects the satisfaction (U) of students who believe that everything in the application is useful and the application can be mastered by anyone quickly.

CONCLUSION

This research is intended to provide an overview of how far the level of acceptance of the Google Classroom application using the Technology Acceptance Model (TAM) for high school students in Bogor City. After going through a series of stages starting with a survey to interpreting the output of the AMOS 25 tool, the following conclusions are obtained.

1. Perceived ease of use (PEOU) has a positive influence on perceived usefulness (PU) in the use of Google Classroom by students.
2. Perceived ease of use (PEOU) does not have a positive effect on attention to use (ATU) in the use of Google Classroom by students.
3. Perceived usefulness (PU) has a positive influence on the perception of attention to use (ATU) in the use of Google Classroom by students.
4. Perceived usefulness (PU) has a positive influence on behavioral intention to use (BIU) in using Google Classroom by students.
5. Perceived attention to use (ATU) has a positive influence on behavioral intention of use (BIU) in the use of Google Classroom by students.
6. Perceived usefulness (PU) has a positive influence on perceived usability (U).
7. Perceived easy of use (PEOU) has a positive influence on usability (U) in the use of Google Classroom by students.

This conclusion shows that the level of acceptance of Google Classroom among state high school students in Bogor City is high. Almost all problem formulations can be responded to properly. Six of the seven hypotheses can be proven with a positive influence on the relationship between variables. Thus, the Google Classroom application deserves to be accepted as a learning medium whose usability and ease of use has influenced students' attitudes, interests, and satisfaction.

On the basis of the conclusions of this research, the following are suggestions for several parties.

1. This research can be a reference for decision makers in high school level schools that the Google Classroom application can be used as an LMS in distance learning during the Covid-19 pandemic, other conditions that do not allow direct learning, and blended learning which combines face-to-face learning. by utilizing digital technology.
2. This research can also be a reference for the wider community, especially parents of students and the education office that Google Classroom, both empirically and scientifically, is feasible to use as a learning medium that connects communication between teachers and students.
3. Research on acceptance of Google Classroom by including external factors such as the social conditions of users as mentioned by Davis (1989) in the TAM scheme, is suggested to enrich the body of research on acceptance of Google Classroom by using the Technology Acceptance Model.

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