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Comparing Usability Satisfaction of Google Meet and Zoom Meeting Application: Customer Satisfaction Index and GAP Analysis Case Study at K University

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ABSTRACT

With the policy of learning from home, the role of information technology become more important. The use of technology in online learning can provide new learning experiences for students. There are several online learning application platforms available and the most popular platforms are Zoom Meeting application and Google Meet. In using the online learning platform, usability aspect is one the most important things. Usability is a measure of the quality of the user experience when interacting with the user-operated device application with the perceived expectations. The purpose of this study is to compare usability satisfaction of Google Meet and Zoom Meeting application using Customer Satisfaction Index (CSI) and GAP analysis. The Customer Satisfaction Index is measured from the five usability aspects of learnability, efficiency, memorability, errors, and satisfaction. Meanwhile, the GAP Analysis is measured based on the perception and expectations of the user of Google Meet and Zoom Meeting application. The result shows that Google Meet has a higher level of usability satisfaction compared to Zoom Meeting application. Google Meet has a usability satisfaction level of 84.29%, meanwhile Zoom Meeting has a usability satisfaction level of 76.67%. The results of GAP analysis on both platforms show that the users made a lot of errors when using Google Meet and find it difficult when using Zoom Meeting application for the first time.

Keywords: Google Meet, Zoom Meeting, Usability Satisfaction, Customer Satisfaction Index, GAP Analysis

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1. INTRODUCTION

At the end of 2019, the world was shocked by the presence of diseases caused by acute respiratory infections. This disease was first discovered in the city of Wuhan, Hubei Province of China, which was identified as Corona Viruses Diseases 2019 or COVID-19 (Li et al., 2020). The spread of COVID-19 was very fast, until The World Health Organization (WHO) declared COVID-19 as a pandemic in March 2020 (YALÇIN et al., 2020). In Indonesia, the first case was announced on March 2, 2020 by the President of the Republic of Indonesia. Over time, the spread of COVID-19 has experienced a significant increase. To minimize the spread of the COVID-19 in Indonesia, the government has implemented a social distancing policy. Social distancing is a condition where people are asked to avoid attending large gatherings or crowds of people. From the education sector, the government's learning from home policy is taken by the government through the Ministry of Education and Culture in accordance with circular letter No. 4 of 2020 which aims to break the chain of spread of the COVID-19.

With the policy of learning from home, the role of information technology become more important (Astini, Sari, 2020). The use of technology in online learning can also provide new learning experiences for students (Rahayu et al., 2020). There are several online learning application platforms available and the most popular are Zoom Meeting and Google Meet (Statqoanalytics, 2020). In using the online learning platform, usability aspect is one of the most important things. Usability is a measure of the quality of the user experience when interacting with the user-operated device application with the perceived expectations (Nielsen, 1994).

One of the indicators of product or service reliability can be seen from the satisfaction of the users, reliability is evidence of the success of the product or service that has been produced. The quality or reliability of a product can be interpreted as the degree of ability to meet the desires of consumers. Products need to have a special attention for their users whether it is individuals or organizations because without a reliable product, organizations or individuals will have difficulties in developing their business. In addition, the organization or company will be enthusiastic if the quality of improvement of a product can be carried out continuously, especially improvements that can be measured either individually, in organizations, or in corporations. If a product does not have innovations or improvements, then it will be abandoned by its users. One of the tools that can be used to measure usability satisfaction is Customer Satisfaction Index. The Customer Satisfaction Index is a method used to determine the overall level of satisfaction by looking at the level of importance of a product and service. The purpose of this study is to compare usability satisfaction of Google Meet and Zoom Meeting application using Customer Satisfaction Index and GAP Analysis. The Customer Satisfaction Index is measured from the five usability aspects of learnability, efficiency, memorability, errors, and satisfaction. Meanwhile, the GAP Analysis is measured based on the perception and expectations of the user of Google Meet and Zoom Meeting application.

2. RESEARCH METHODS

2.1. Participants

Participants of this study are undergraduate students at K University from various majors. K University has approximately 3500 students who are experiencing more than one semester of online classes using Google Meet or Zoom Meeting application.

2.2. Data Collection

The data was collected in October-November 2021 using online questionnaire with Likert Scale 1-5, meanwhile the number of required samples was calculated using Slovin formula with 10% margin of error. Based on the calculation, the minimum number of samples required on this study is 98 students. The sample was conducted with simple random sampling method.

$$n = \frac{N}{1 + (Ne^2)} \qquad (1)$$

n = number of required samples
N = total population
E = error allowance

2.3. Statistical Data Analysis

Statistical test was conducted using JASP software and the significance level was 0.05. Validity and reliability test were performed to check the reliability and validity of the questionnaire. Normality test was performed to check the data parametric assumption, then the parametric test will be performed if the normality assumption is not violated.

2.4. Usability

Usability comes from the word usable which in general means it can be used properly. Something can be said to be good to use if failure on its use can be eliminated or minimized as well as provide benefits and satisfaction to the users (Rubin & Chisnell, 2008). International Organization for Standardization (ISO) define usability ad the degree where a product can be used by certain users to achieve its goals more effectively, efficiently, and satisfying within the scope of its users. Rubin & Chisnell (2008) explained that a product can be said to be usable when the users are not frustrated while using the application. Users can do what they want to do without a hitch, difficulty, hesitations, and even without questions.

Usability is not a single, one-dimensional property of a user interface. Usability has multiple components and associated with the following five quality components by Nielsen (1993):

- Learnability: How easy it is for users to accomplish basic tasks the first time they encounter the design?
- Efficiency: Once users have learned the design, how quickly they perform tasks?
- Memorability: When users return to design after a period of not using it, how easily can they reestablish proficiency?
- Errors: How many errors do users make, how severe these errors, and how easily can they recover from the errors?
- Satisfaction: How pleasant is it to use the design?

2.5. Customer Satisfaction Index

Customer Satisfaction Index or better known as CSI is a method to determine the overall level of satisfaction by looking at the level of interest in the product or service. With CSI, the assessor could consider the level of importance of the measured attribute. High product quality is an advantage that is expected by the users, because it will be easier to the organization or company to complete their work. Otherwise, if the product is not performing well, it will be no longer used by the customers. Quality is said to be good and reliable if it is able to provide satisfaction or more value given from the product. There are several approaches or dimension of quality that are often used to measure product satisfaction based on the products. The dimension for quality of usability in this study were measured using Customer Satisfaction Index.

There are several steps to calculate the Customer Satisfaction Index (CSI) according to Aritonang (2005):

1. Determine the Mean Importance Score (MIS) for each variable
2. Create Weight Factors (WF) for each variable. This weight is the percentage of MIS value per variable to the total MIS of all variables
3. Determine the Mean Satisfaction Score (MSS) for each variable
4. Create Weight Score (WSk) for each variable, this weight is the product of WFk with MSSk
5. Determine the Customer Satisfaction Index (CSI)

   The CSI value is obtained by using the following equation:

$$CSI = \frac{\sum_{k=1}^{P} \text{WSk}}{HS} x\ 100\% \quad (2)$$

   where HS (Highest Scale) = the maximum scale used (Oktaviani, 2006). The interpretation of CSI can be seen in Table 2.1.

Table 1. Customer Satisfaction Index Interpretation

Index number	Interpretation
X ≤64%	Very poor
64%<X≤71%	Poor
71%<X≤77%	Cause for concern
77%<X≤80%	Borderline
80%<X≤84%	Good
84%<X≤87%	Very Good
87%<X	Excelent

Notes: X = Customer Satisfaction Index Score
Source: https://www.bing.com/images/search?q=rumus+customer+satisfaction+index&form

2.6. GAP Analysis

GAP Analysis is a measurement method to compare actual performance with expected performance. In the work process, GAP Analysis could also be used in an approach study to compare a system inside an organization or corporation that is currently running. One of the goals in conducting a GAP Analysis is to determine what steps that must be achieved to reach future goals. If the organization experiences a gap condition, then the gap analysis could act as an evaluation method that shows the reality gap in a company. Determining the gap analysis must be

structured on the category, so the analysis could be right for which category that need to be improved. Gap analysis become effective and efficient if a checklist is carried out in a structured manner and according to the category. The categories in the checklist must cover all the existing requirements and are made in stages or tiers in their application. This will provide an explanation or description of the category that will be assessed (Picard *et al*., 2016).

The most popular service quality model and used as a reference until now on service management and marketing research is SERVQUAL which was developed by Parasuman *et al* (1985). SERVQUAL is also known as the GAP Analysis model. This method developed by Zeithaml (1990) which measures quality quantitatively in the form of questionnaire containing the dimensions of service quality. Berry *et al* in Tjiptono (2008) developed the following formula:

$$Q = P - E \qquad (3)$$

Q = Service quality
P = Perception of the users
E = Expectation of the users

3. RESULT AND DISCUSSION

3.1. Customer Satisfaction Index

CSI questionnaire was used to measure the five quality components of Usability by Nielsen (1993) namely learnability, efficiency, memorability, errors, and satisfaction in Google meet and Zoom meeting Application.

Table 2. CSI Calculation for Google Meet

Items	Perception (P) (Scale 1–5)	Expectation (E) (Scale 1–5)	Weight Factor	Weight Score
L1	4.49	4.56	0.104	0.47
L2	4.54	4.51	0.103	0.47
E1	4.33	4.36	0.100	0.43
E2	4.38	4.48	0.102	0.45
M1	4.55	4.44	0.101	0.46
M2	4.24	3.81	0.087	0.37
ER1	3.34	4.39	0.100	0.33
ER2	3.96	4.31	0.098	0.39
S1	4.17	4.41	0.101	0.42
S2	4.14	4.52	0.103	0.43
Mean	4.21	4.38		
Total	42.14	43.78	1.00	4.22

$$CSI = \frac{\sum_{k=1}^{P} WSk}{HS} x\ 100\%$$

$$= \frac{4.22}{5}\ x\ 100\ \% =\ 84.29\ \%$$

From the CSI calculation, Google Meet has a usability satisfaction level of 84.29% for overall five usability quality aspects. The interpretation of CSI on Table 1 shows that CSI score of Google Meet is in the Good category which means the students at K university are satisfied using Google Meet for online classes. Further analysis about the five usability quality aspects of Google Meet will be measured using GAP analysis below.

Table 3. CSI Calculation for Zoom Meeting Application

Items	Perception (P) (Scale 1–5)	Expectation (E) (Scale 1–5)	Weight Factor	Weight Score
L1	3.69	4.23	0.102	0.38
L2	3.91	4.18	0.101	0.39
E1	3.74	4.15	0.100	0.37
E2	3.78	4.15	0.100	0.38
M1	3.98	4.15	0.100	0.40
M2	3.72	4.16	0.100	0.37
ER1	3.68	3.76	0.090	0.33
ER2	3.68	4.10	0.099	0.36
S1	4.09	4.32	0.104	0.42
S2	4.05	4.36	0.105	0.42
Mean	3.83	4.16		
Total	38.34	41.57	1.00	3.84

$$CSI = \frac{\sum_{k=1}^{P} WSk}{HS} x\ 100\%$$

$$= \frac{3.83}{5}\ x\ 100\ \% = 76.67\ \%$$

From the CSI calculation, Zoom Meeting application has a usability satisfaction level of 76.67% for overall five usability quality aspects. The interpretation of CSI on Table 1 shows that CSI score of Zoom Meeting application is in the Cause for concern category which means the students at K university are not very satisfied using Zoom Meeting application for online classes. Further analysis about the five usability quality aspects of Zoom Meeting will be measured using GAP analysis below.

3.2. GAP Analysis

Table 4. GAP Analysis for Google Meet

No	Attribute	Code	GAP
1	I made a little error when using Google Meet	ER1	-1.051
2	I am satisfied with the interface design of Google Meet	S2	-0.378
3	Errors that I made on Google Meet are easily fixed	ER2	-0.347
4	I am satisfied with all the features on Google Meet	S1	-0.235
5	I understand all the features in Google Meet	E2	-0.102
6	Google Meet was very easy to use when I first tried it	L1	-0.071
7	It didn't take a long time to be able to enter online classes on Google Meet	E1	-0.031
8	I didn't find it difficult every time I use Google Meet	L2	0.031
9	After a long time not using Google Meet, I could still use it well	M1	0.112
10	I can remember all the settings in Google Meet	M2	0.439

From the GAP analysis of five usability aspects towards Google Meet shows that the students at K University made a lot of error when using Google Meet and were not satisfied with the interface design of Google Meet. The users also stated that the errors they made in Google Meet were not easily fixed and they were not satisfied with all the features on Google Meet. The highest GAP value was obtained in Error and Satisfaction aspect which means Google Meet should improve their interface design and features to reduce users' errors and increase users' satisfaction.

Table 5. GAP Analysis for Zoom Meeting Application

No	Attribute	Code	GAP
1	Zoom Meeting application was very easy to use when I first tried it	L1	-0.541
2	I can remember all the settings in Zoom Meeting application	M2	-0.439
3	Errors that I made on Zoom Meeting application are easily fixed	ER2	-0.418
4	It didn't take a long time to be able to enter online classes on Zoom Meeting application	E1	-0.408
5	I understand all the features in Zoom Meeting application	E2	-0.378
6	I am satisfied with the interface design of Zoom Meeting application	S2	-0.306
7	I didn't find it difficult every time I use Zoom Meeting application	L2	-0.276
8	I am satisfied with all the features on Zoom Meeting application	S1	-0.224
9	After a long time not using Zoom Meeting application, I could still use it well	M1	-0.173
10	I made a little error when using Zoom Meeting application	ER1	-0.071

GAP analysis for five usability aspects towards Zoom Meeting application shows that the students at K University think that it is very hard to use Zoom Meeting application for the first time and the users could not remember all the settings available on Zoom Meeting application. The users at K University also stated that the errors they made on Zoom Meeting application were not easily fixed and it took a long time to be able to enter online classes on Zoom Meeting application. The improvement of usability of Zoom Meeting application are expected to be done on Learnability, Memorability, Error and Efficiency aspect because the highest GAP value was obtained on those aspects. Zoom Meeting application need to make the design interface simpler so that it will be easier for the new users to use it and increase efficiency.

4. CONCLUSION

From the result of CSI calculation, it can be concluded that Google Meet has a higher level of usability satisfaction compared to Zoom Meeting application. Google Meet has a usability satisfaction level of 84.29%, meanwhile Zoom Meeting has a usability satisfaction level of 76.67%. But the result of GAP analysis on Google Meet shows that the students at K University made a lot of error when using Google Meet so Google Meet should improve their interface design and features to reduce users' errors and increase users' satisfaction. In contrast, the result of GAP

analysis on Zoom Meeting application shows that the students at K University think that it is very hard to use Zoom Meeting application for the first time. Zoom Meeting application need to make the design interface simpler so that it will be easier for the new users to use it and increase efficiency.

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