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Analysis of Student Satisfaction with the Group Investigation of Digital Entrepreneurship (GIDE) Application Using the Servqual Method

Sri Restu Ningsih[1*✉], Erdisna[2], Deval Gusrion[3], Febriyanno Suryana[4], Weni Kurnia Sari[2]
[1]Department of Information Systems, Universitas Metamedia, Padang, Indonesia
[2]Department of Electronics Engineering, Universitas Negeri Padang, Padang, Indonesia
[3]Department of Information Systems, Universitas Putra Indonesia YPTK, Padang, Indonesia
[4]Department of Computer Systems, Universitas Putra Indonesia YPTK, Padang, Indonesia
*Corresponding Author: ***srirestuningsih@metamedia.ac.id***

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ABSTRACT

Group Investigation of Digital Entrepreneurship (GIDE) application is a form of learning information technology applied in the field of education. The problem that occurs is that there are still students who have difficulty in using and accessing the GIDE application. This study aims to determine the level of satisfaction of students who have used the GIDE application as a medium in learning. The method used in this research is the Servqual (Service Quality) method. This method is used to identify and prioritise customer satisfaction, in this case students in higher education. The dimensions used in this study are reliability, responsiveness, assurance, empathy, and tangible. The results showed that student satisfaction with the GIDE application was said to be satisfied. The results of testing all tangible variables with an expected value of 0.75 and a reality value of 0.81, reliability with an expected value of 0.77 and a reality value of 0.82, responsiveness with an expected value of 0.80 and a reality value of 0.81, assurance with an expected value of 1.03 and a reality value of 1.13, empathy with an expected value of 1.13 and a reality value of 1.12. of the five dimensions show the level of user satisfaction (students) is included in the 'Satisfied' category.

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1. INTRODUCTION

The utilisation of technology is expected to bring enormous benefits to the world of education [1] [2]. Many new types of learning mostly consider a deeper understanding of the discipline combined with the essence of humanity, emotional intelligence, critical thinking, and creativity. This kind of learning is called deep and meaningful learning [3]. Various facilities and infrastructure that support the implementation of a good, integrated, directed and quality learning process are now being carried out in supporting the needs of development and progress in the field of science and technology, especially in the field of information systems [4]. The increasing progress of the digital era, especially in the field of informatics and computers, is certainly closely related to the satisfaction of its users.

Satisfaction is the level of feeling where someone states the results of the comparison of the performance of the product or service received and expected. The best quality of service for consumers is with the aim of creating customer satisfaction [5][6]. Customer satisfaction and dissatisfaction with a product as the end of a sales or use process has its own impact on customer and user behaviour towards the product [7].

The number of emerging applications that have their own advantages and disadvantages that give their own impression to their users so that they give birth to the value of the application itself [8]. Technological developments not only make it easier for users to access information, but also facilitate and assist in the learning process [9][10].

Satisfaction can be defined as a feeling of satisfaction, pleasure and relief of a person due to consuming a product or service to get a service [11]. It can be said that satisfaction is the level of assessment or the difference between what is received and what is expected. So it can be concluded that student satisfaction is the level of satisfaction felt by students from using a product or service offered with what has been received or felt by the student. Analysis is used to find deficiencies in existing applications. [12].

In analysing student satisfaction in higher education with the GIDE application, researchers used the servqual method. The GIDE application is a digital entrepreneurship learning media whose learning steps refer to project-based learning and product-based learning. This media was developed with learning steps that direct students to have the ability to become entrepreneurs in the digital era by applying new literacy skills 4.0. The Servqual method is a method that is often used to measure service quality [13]. The servqual method is a method used to measure the quality of service or service from the attributes of each dimension, so that a gap value will be obtained.

2. RESEARCH METHOD

The research method used in examining the analysis of student satisfaction with the GIDE application used in this study is the servqual method. Servqual (Service Quality) is a method that is often used to measure service quality. Servqual is built on a comparison

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of two main factors, namely customer perceptions of the actual service they receive (perceived service) with the actual service expected (expected service).

There are 5 dimensions in measuring quality using the Servqual method to identify the gap between the service expected by customers and the service felt by customers. The 5 dimensions include tangible (physical dimension), reliability, responsiveness, assurance and empathy [14].

2.1. Servqual Concept

The basic concept of customer satisfaction is the level of expectations and services provided to consumers. The basic concepts of ServQual are as follows:

1) Perceived quality vs objective quality
2) Consumers and researchers have different understandings of quality. Researchers define quality conceptually. Conceptual means distinguishing between mechanical quality and human resource quality. Mechanical quality covers the objective aspects of a process, while human quality covers how subjective responses to a process are.
3) Quality as attitude
4) Quality is seen as a form of overall evaluation of a product.
5) Quality versus satisfaction
6) Satisfaction is a psychological conclusion point regarding how consumers feel about the experience they receive and their expectations.
7) Expectation compared to perceptions
8) Service quality stems from the comparison between the service that should be provided to consumers and consumers' perceptions of service performance.

2.2. Servqual Dimensions

The servqual scale includes five dimensions of service quality, namely; Tangibles, Reliability, Responsiveness, Assurance, and Empathy. Each dimension has several questions and is answered in a value range of 1 to 5, where the number 1 represents a feeling of strong disagree and the number 5 represents a feeling of strong agree. The following is an explanation of the 5 dimensions above, namely:

1) Tangibles (measurable evidence), the appearance of physical facilities, equipment, personnel, and communication materials.
2) Reliability, the ability to perform the promised service accurately and reliably.
3) Responsiveness, which is the willingness to help customers and provide services immediately.
4) Assurance, providing a sense of trust and confidence.
5) Empathy, which includes individualised care and attention to users.

2.3 Advantages of Servqual Method

Some of the advantages of Servqual in assessing student satisfaction with the learning model are as follows:

1) Comprehensive, meaning that Servqual expands the perspectives covered in strategic planning from those previously limited to internal perspectives, extending to three other perspectives, namely customers, processes, and learning and growth.
2) Coherent, meaning that Servqual requires personnel to establish a causal relationship between the various strategic objectives set in the internal perspective must have a causal relationship with service satisfaction objectives, either directly or indirectly.
3) Balance, meaning balance between strategic goals, because performance assessment using Servqual does not only pay attention to service aspects, but also non-financial aspects such as customers, internal business processes, and learning and growth.
4) Measurable, meaning that all strategies set in each Servqual perspective have their respective benchmarks. Strategic goals in a non-financial perspective are things that are not easy to measure, but with the Servqual approach non-financial strategic goals (customer perspective, internal business processes, learning and growth processes) can be determined, so that the results can be managed and evaluated and their contribution to the financial perspective can be known.

Service Quality measurement can be formulated as follows:

$$\text{Score Servqual} = \text{Score Perception} — \text{Score Expectations} \quad (1)$$

If:

- ◎ The result of the assessment of perception (reality) and user expectations is positive (P > H), then it is said to be very satisfactory.
- ◎ The result of the assessment of perception (reality) and user expectations is zero (P = H), then it is said to be satisfactory.
- ◎ The result of the assessment of perception (reality) and user expectations is negative (P < H), then it is said to be unsatisfactory.

(1). Calculation of customer or user expectations

$$\sum yi = (\sum \text{STT} \times 1) + (\sum \text{TT} \times 2) + (\sum \text{CT} \times 3) + (\sum \text{T} \times 4) + (\sum \text{ST} \times 5) \quad (2)$$

Source: [15]

Description:

$\sum y\ i$ = the sum of the weights of the answers to the ith variable expectation statement
$\sum$ STT = the number of people who choose the answer is very unfulfilled
$\sum$ TT = the number of people who chose the answer is not fulfilled
$\sum$ CT = the number of people who choose the answer is quite fulfilled
$\sum$ T = the number of people who chose the answer fulfilled

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∑ ST = the number of people who chose the answer is very fulfilled
1,2,3,4,5 = score for Likert scale.

(2). Calculation of user-perceived reality

$$\sum x\ i = (\sum STT \times 1) + (\sum TT \times 2) + (\sum CT \times 3) + (\sum T \times 4) + (\sum ST \times 5) \quad (3)$$

Source: [15]

Description:
∑x i = the sum of the weights of the answers to the statement of reality of the i-th variable
∑ STT = the number of people who choose the answer is very unfulfilled
∑ TT = the number of people who chose the answer is not fulfilled
∑ CT = the number of people who choose the answer is quite fulfilled
∑ T = the number of people who chose the answer fulfilled
∑ ST = the number of people who chose the answer is very fulfilled
1,2,3,4,5 = score for Likert scale.

(3). Average expectation statement

The average respondent's answer to the expectation statement can be calculated by the equation:

$$Yi = \frac{\sum yi}{n} \quad (4)$$

Description:
Yi = the average respondent's answer to the ith attribute expectation statement
∑yi = the sum of the weights of the answers to the ith attribute expectation statement
n = number of respondents

(4) Average reality received or perceived

The average respondent's answer to the reality statement can be calculated by the equation:

$$Xi = \frac{\sum Xi}{n} \quad (5)$$

Description:
Xi = average respondent's answer to the statement of the reality of the i-th attribute
∑x i = sum of the weights of the answers to the statement of the reality of the i-th attribute
n = number of respondents

(5) Range of gap values

Table 1. Gap value range

< 0 s/d < 1.00	**Highly Compliant**
> 1.00 s/d < 2.00	Optimise
> 2.00 s/d < 3.00	Improve
> 3.00 s/d < 4.00	Improve
> 4.00	Further Improved

Source : [16]

Description:
< 0 to < 1.00 : Very fulfilling (users are very satisfied with the system)
> 1.00 to < 2.00 : Optimise (the system must be improved again)
> 2.00 to < 3.00 : Improve (users feel less so it must be even better for system quality)
> 3.00 to < 4.00 : Improve (the quality of the system is lacking so much that must be improved)
> 4.00 : more improved (the quality of the existing system is very lacking so that it must be more considered and improved again).

3. RESULTS AND DISCUSSION

Analysis is an activity that contains a number of activities such as parsing, distinguishing, sorting out something to be classified and regrouped based on certain criteria to then look for links and interpret their meaning. Analysis is a process to break something into parts that are related to each other [17].

For the appearance of the GIDE application can be seen in the following figure:

1) Display Figure 1 displays the main page that can be accessed by lecturers and students. Lecturers and students can login to enter the learning system.

Figure 1. Main page display

2) Display Figure 2 is a display of the material input page. Here the lecturer can input the material that will be given to students. Students can upload material provided by lecturers.

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Figure 2. Material input page display

After the GIDE application is implemented to students, a validity test is carried out using an online questionnaire. Based on the validity test results, the results are as follows:

1) Tangibles

In the results of the tangibles validity test display for rtable limits with N = 64. The value of N is obtained from the formula df (N-2) = df (64-2) = 62. Then get rtabel of 0.2137. The rcount value in the tangibles validity test output table shows greater than the rtable value, meaning that if the correlation value is more than the specified limit, the item is considered valid.

2) Realibility

In the results of the realibility validity test display for the rtable limit with N = 64. The N value is obtained from the formula df (N-2) = df (64-2) = 62. Then get rtabel of 0.2137. The rcount value in the realibility validity test output shows greater than the rtable value, meaning that if the correlation value is more than the specified limit, the item is considered valid.

3) Responsiveness

In the results of the responsiveness validity test display for the rtable limit with N = 64, the N value is obtained from the formula df (N-2) = df (64-2) = 62. Then get rtabel of 0.2137. The rcount value in the responsiveness validity test output table shows greater than the rtable value, meaning that if the correlation value is more than the specified limit, the item is considered valid.

4) Assurance

In the display results of the assurance validity test for the rtable limit with N = 64. The value of N is obtained from the formula df (N-2) = df (64-2) = 62. Then get rtabel of 0.2137. The rcount value in the assurance validity test output table shows greater than the rtable value, meaning that if the correlation value is more than the specified limit then the item is considered Valid.

5) Empathy

In the display results of the empathy validity test for the rtable limit with N = 64. The N value is obtained from the formula df (N-2) = df (64-2) = 62. Then get rtabel of 0.2137. The rcount value in the empathy validity test output table shows greater than the rtable value, meaning that if the correlation value is more than the specified limit, the item is considered valid.

3.1. Reliability Test

Based on the previous validity test, the next stage is to conduct a reliability test which aims to determine the level of consistency of the questionnaire used by the researcher so that the questionnaire is reliable. In this validation test stage, the question items contained in the questionnaire and have been declared valid are tested using the Cronbach's Alpha method in SPSS V.20 Software. Reliability test results can be seen in Table 2 below:

Table 2. Reliability test results

Number	Variables	Test Resultt	Requirements	Description
1	Tangibles Variables	0,910	0,5	Perfect reliability Alpha value > 0,90
2	*Realibility* Variables	0,912	0,5	Perfect reliability Alpha value > 0,90
3	*Responsiveness* Variables	0,842	0,5	High Reliabilitas Alpha value (0,70 – 0,90)
4	*Assurance* Variables	0,915	0,5	Perfect reliability Alpha value > 0,90
5	*Empathy* Variables	0,875	0,5	High reliability Alpha value (0,70 – 0,90)

It can be seen from table 2 above, the variables Tangibles, Realbility, Responsiveness, Assurance, and Empathy, have a Cronbach's Alpha value greater than 0.6. So it can be concluded that this research questionnaire is reliable. The reliability figures that show an average value of >0.8 and >0.9 then the research questionnaire is stated to have high and perfect reliability.

3.2. Discussion

Data processing is carried out by collecting the questionnaires that have been distributed and starting the calculation of gap 5 (servqual) based on the servqual score formula [18];[19];[20]. Furthermore, calculating gap 5, namely student expectations regarding the use of the application against the reality of student satisfaction in using the application. Calculation of service answers gap 5 was collected from 64 student

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respondents. The following diagram is the result of calculating the average gap value based on the 5 dimensions of servqual which can be seen in Table 3.

Table 3. Average gap value against system quality statements

Statement Attributes	User Expectations		The reality that users perceive		*Gap Value*
	Weight Value (ΣYi)	Expected Value (Yi)	Weight Value (ΣXi)	Reality value (Xi)	
1	201	3,19	205	3,24	0,05
2	218	3,35	206	3,27	0,18
3	200	3,18	213	3,28	0,19
4	157	2,49	211	3,35	0,85
5	188	3,00	205	3,25	0,25
6	207	3,29	213	3,38	0,08
7	201	3,19	215	3,41	0,21
8	201	3,19	210	3,33	0,13
9	197	3,13	187	2,97	0,15
10	201	3,19	204	3,24	0,04
11	221	3,51	224	3,56	0,04
12	197	3,13	218	3,46	0,32
13	211	3,35	219	3,48	0,12
14	190	3,02	212	3,37	0,34
15	195	3,10	218	3,46	0,35
16	201	3,19	214	3,40	0,20
17	206	3,27	210	3,32	0,04
18	244	3,87	223	3,54	0,32
Amount		**57,64**		**60,31**	

From table 3 above, all the calculation results of the gap value are in the range <0 to <1.00 so it is concluded that it is very satisfying in the sense that users are very satisfied with the quality of the application or system.

In the previous table, it has been explained that the value of user expectations and the reality received or felt by users. Furthermore, it will be simplified based on the five dimensions of servqual as seen in Table 4 below:

Table 4. Average gap value 5 based on servqual dimensions

Question dimensions	Question attributes	Average number of expectations	Average number of facts	Expected value	Reality value	Gap Value
Tangible	1,2,3,4	3,05	3,30	0,75	0,81	0,04
Reliability	5,6,7,8	3,17	3,33	0,77	0,82	0,03
Responsiveness	9,10,11,12	3,23	3,31	0,81	0,81	0,01
Assurance	13,14,15	3,16	3,42	1,03	1,13	0,08
Empahty	16,17,18	3,45	3,41	1,13	1,12	0,01

The average gap value based on the servqual dimensions in Table 4 above, if depicted in graphic form, will look like Figure 3.

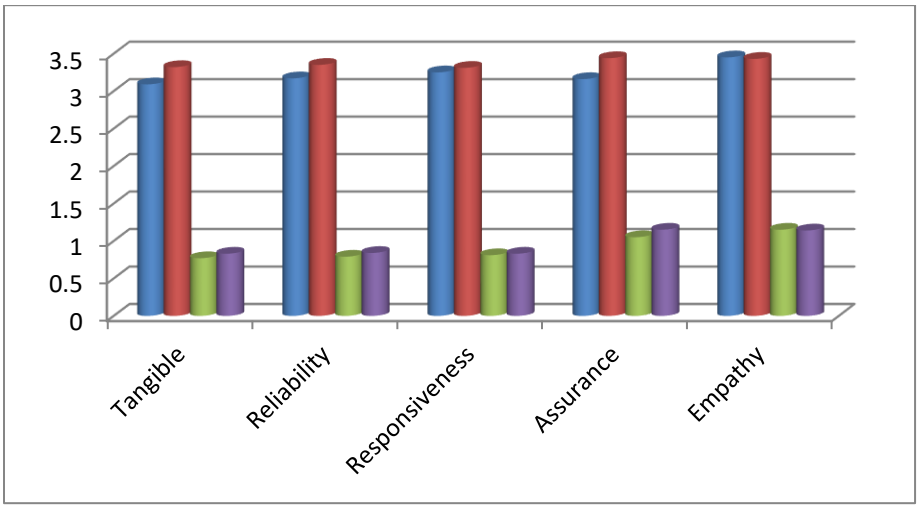

Figure 3. Average gap value based on servqual dimensions

4. CONCLUSION

The conclusion obtained from the analysis of the GIDE application on student satisfaction based on the Servqual method, namely after testing, shows that the GIDE application plays a role as an aid in the learning process. From the results obtained, it can be concluded that student satisfaction with the GIDE application is said to be satisfactory. The results of testing all tangible variables with an expected value of 0.75 and a reality value of 0.81, reliability with an expected value of 0.77 and a reality value of 0.82, responsiveness with an expected value of 0.80 and a reality value of 0.81, assurance with an expected value of 1.03 and a reality value of 1.13, and empathy with an expected value of 1.13 and a reality value of 1.12. from the five dimensions shows the level of user satisfaction (students) is included in the "Satisfied" category.

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