

# E-Learning Service Quality Improvement Strategies Through the Application of Education Integrated Teaching (Edit) with Integration of Service Quality (Servqual) Method and Kano Model

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**Abstract:** This research integrates the servqual and kano model to develop a strategy to improve the quality of learning application services using e-learning platform called education integrated teaching (edit) owned by Bimbel Edulab so that the service is in accordance with the needs of the users of Edulab Students. The data used in this study are the results of a questionnaire of 298 respondents who are active users edit. The results of the study using the servqual method show that 24 research attributes that are divided into 4 dimensions of edit services used in this study are web application design, easy of use, reliability and availability systems that have a negative gap, with the highest gap found in the web application design dimension. This means that the quality of the edit service currently cannot meet the expectations of the users edit. The results of the classification using kano model show that there are seven research attributes included in the must-be category, seven attributes in one-dimensional categories, three attractive categories, and seven indifferent attributes.

**Keywords:** Edit, Edulab, Servqual, Model Kano

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## I. Introduction

Opportunities in the education services business in Indonesia are promising in the midst of increasingly fierce competition in the goods and services business. Regulatory factors and the service business environment today encourage many non-formal education service provider companies in the form of courses and training institutions (LKP), one of which is a tutoring institution (Bimbel). The Bimbel Institution generally sells mentoring services and training on exam questions to the students who are consumers, with the main goal being to get the best achievement in school in the form of obtaining report cards and national exam scores as well as preparing for the selection of admission to State Universities (PTN).

Competition between Bimbel institutions is increasingly tight along with the development of information technology (IT). If previously the main issue of competition between Bimbel institutions in terms of service quality was the level of quality and quantity of service in the offline learning process, namely bringing students together with teachers face to face learning, then the availability of e-learning through mobile facilities is currently available. Learning from a Bimbel institution is one of the factors of competitive advantage.

The emergence of the use of e-learning applications as learning media has increasingly been encountered in the educational process which previously only rested on the existence of teachers or conventional learning media.

PT. Edulab Indonesia's creations or in the Bimbel industry is better known as the Education Laboratory (Edulab) which attended on July 2, 2007 in Bandung City, is one of the educational service companies that has developed service products with e-learning platforms in the form of mobile learning applications with integrated education or edit. The features contained in the edit application include consultation, eduvideo, tryout, lesson outline and problem set. When this research was compiled, edit was used as a support facility for academic services that could be accessed by Edulab students.

Edit as the new strategic business unit (SBU) in 2019. In addition, during 2018 the number of active users of the edit application experienced fluctuations and tended to decline. In January 2018, the number of active users reached 61% of the total users downloaded. Whereas, in the following months the percentage of active users decreased to 34%.

Edulab has never carried out research on measuring service quality to user edit, so this study is expected to help management in overcoming these problems to determine consumer perceptions and

expectations so that edit applications can have a competitive advantage as e-learning platforms. This study uses a combination of servqual methods and kano model in the process of designing and developing edit application products to assist management in realizing its goals.

The first stage of this study used the first stage method of this study using the servqual method used by the author to determine the quality of edit application services at this time based on the results of the gap, namely how the user perceptions and user expectations. The second stage uses the kano model which is a continuation of the servqual method. Kano model is a method that aims to categorize the attributes of a particular product or service that is able to satisfy customer needs. This whole process will ultimately provide systematic steps regarding product and service planning carried out by the development team by looking for customer desires and needs and then evaluating efforts to achieve these goals.

## **II. Theoretical Review**

### **2.1 Definition of Strategic and Strategic Management**

According to Santos (2003), strategies are interpreted by managers as their plans that are large-scale and oriented towards the future to interact with the competitive environment in order to achieve company goals. Strategy is a company 'plan to play'. Although the plan does not specify all HR, financial and material uses in the future, it provides a framework for managerial decisions. The strategy reflects the company's awareness of how, when, and where it must compete, against whom, and for what purpose.

If a company runs without a good strategy, the company will lose its intended direction and the allocation of resources will be chaotic. Business competition conditions in the modern and high-tech era such as today are very dynamic resulting in business patterns increasingly experiencing changes. Companies that have good strategies and can adjust themselves will be able to survive and grow according to the times.

### **2.2 Service Quality Theory**

Products of goods and services sold by companies should be able to provide optimal benefits to their customers, so services need to be sought in order to be able to provide value consistently. Quality of service as one element of marketing needs to be treated as part of the spirit of all parts of the organization.

#### **a. Reliability**

In simple language, reliability can be interpreted as the company's ability to deliver service in accordance with the promised consistently and accurately. This reliability is the first and foremost element that marketers need to pay attention to in establishing long-term relationships with customers. In this study, the author will test the reliability of the edit application as a learning-service system and at the same time test the reliability of human resources as the application operator.

#### **b. Assurance**

Assurance, can be interpreted as the knowledge and friendliness of service providers and the ability to grow customer trust. This element greatly affects the customer's perception of the company. Companies often meet customer complaints simply because the service provider is bitchy to the customer, even though the other elements are really good. This is what makes assurance important to note.

#### **c. Tangibles**

This element reflects on physical facilities, equipment, and staff appearance. Even though it seems trivial, poor management can cause a negative image to the customer. Do you want to be hospitalized in a dirty hospital or eat in a restaurant that has many mice? Certainly not. Therefore, limitations do not make us lazy to care for the tangible aspects of the service we provide.

#### **d. Empathy**

Empathy is more and personal attention given by service providers to their customers. When done correctly, empathy can leave a deep impression. This tends to be 'cheap' because it only has sincerity but has a big impact. It is suitable to be considered in times of challenges like today.

#### **e. Responsiveness**

Responsiveness is the willingness to provide timely service to customers so that customers get everything in accordance with the conditions faced. This element is increasingly important because in the era of information technology development, as now, customers are increasingly demanding to get service more easily, quickly, and practically.

### **2.3 Definition of E-Learning**

The presence of the internet in human life can further facilitate and accelerate the process and the purpose of interaction in various social activities such as in the fields of economics, politics, culture, law and also in the field of education. In everyday life, various terms such as e-commerce, e-budgeting, e-government and e-learning show a process of activity which in the implementation uses the internet. In this paper, the term e-learning will be discussed, which is an application-based Edulab business platform called edit. According to Naidu (2006:1) e-learning is an educational activity individually or in groups that is done online or offline through networks or personal computers and other electronic devices. The learning model is flexible which allows e-learning participants to access anytime and from anywhere.

### **2.4 Definition of Application**

Mobile application is a type of application software designed to run and perform certain tasks on mobile devices, such as mobile phones, smartphones, and PDAs. Mobile applications are not only able to process basic services such as telephone services and messaging services, but have been able to perform complex tasks such as displaying and processing information systems based on digital services in this study as well as including online learning systems.

### **2.5 Servqual Method and its Use**

The servqual (service quality) model is a popular service quality approach used as a reference in marketing research. The method was developed by Zeithaml, Parasuraman and Berry in the 1980s. According to Oliver (1997) in Tjiptono (2011), the model known as the Gap Analysis Model is closely related to consumer satisfaction. This method can provide an assessment of how big the gap is between customer perceptions and customer expectations for a service.

E-service quality as a comprehensive evaluation and evaluation of the quality of service delivery to consumers in the virtual market. Editing applications that are part of Edulab services virtually need to be measured for quality in order to continue to improve services tailored to the wishes of its users.

### **2.6 Use of the Kano Model**

Noriaki Kano in 1980 developed a diagram that is useful for classifying the attributes of a product or service based on how the product or service can satisfy user needs. The diagram is then called a kano diagram or kano model.

There are three types of products or services based on how well the product or service is able to satisfy customer needs, namely:

- a. The must be (basic needs) requirements, users become dissatisfied if the performance of the attribute concerned is low. But customer satisfaction will not increase far above neutral even though the performance of these attributes is high. If this category is not met, then consumers will be extreme dissatisfied. On the other hand, because consumers consider this category as appropriate, the fulfillment of this category will not increase customer satisfaction.
- b. The One dimensional (performance needs) requirements. In this category, the level of customer satisfaction is linearly related to the performance of attributes, so that high attribute performance will result in high customer satisfaction, and vice versa users will also not be satisfied if these attributes are not met.
- c. The attractive (excitement needs) requirements. The level of customer satisfaction will increase very high with increasing performance attributes. However, a decrease in the performance of attributes will not cause a decrease in the level of satisfaction. If given, this category is a product criterion that has the greatest influence on customer satisfaction. The attractive requirement is not required to be available and not expected by consumers.

## **III. Materials and Method**

### **3.1 Type of Research**

According to Sinulingga (2017) the research can be divided into six (6) groups based on the methods used, namely historical research, descriptive research, experimental research, action research, grounded research, and developmental research. Based on the method used, this study uses descriptive quantitative research methods.

Descriptive research or survey is an investigation carried out to obtain facts from existing symptoms and find factual information to get the truth. Fink and Kosecoff more explicitly define survey research as a method of collecting data and information directly from certain people who are the object of research on feelings, motivations, plans, beliefs, personalities, education and their financial backgrounds which all depend on the research objectives (Sinulingga, 2017). Survey methods are used to get data from certain natural places

(not artificial), but researchers treat them in data collection, for example by distributing questionnaires, tests, structured interviews and so on.

In this study the author uses a qualitative approach, with the aim of being able to find problems or focus on research on edit applications during this research. An analysis has already begun during the data collection process. The data obtained is quantified in the form of values from qualitative variables.

Based on the field according to Sugiyono (2012), research can be divided into academic, professional and institutional research. This research belongs to the field of institutional research, namely research that aims to obtain information that can be used for the development of institutions. The results of the study will be very useful for leaders for decision making. The results of the study emphasize external validity (usability), complete variables (completeness of information) and the sophistication of the analysis adjusted for decision making.

Based on the purpose of this research research is research and development (R and D). Borg and Gall, in Sugiyono (2012) state that development research is a study used to develop or validate products used in education and learning. The results of this study are expected to improve the quality of EDULAB's edit application services through advanced stage improvements and innovations.

### **3.2 Location and Time of Research**

This research was carried out in an educational services company (Bimbel) PT. Edulab Indonesia Creations, headquartered on Jl. Ir. H Djuanda No. 84 Kota Bandung, and has branch offices in several major cities in Indonesia. The following is the address of the Edulab branch office whose students were made as respondents (research sample) after editing, coding and categorizing the questionnaire data collected during the research.

### **3.3 Research Populations and Samples**

According to Sugiyono (2012) population is a generalization area consisting of objects or subjects that have certain qualities and characteristics set by researchers to be studied and then conclusions drawn. The population in this study were Edulab students who became users of edit applications through mobilephone or android-based gadgets throughout the Edulab branch in Indonesia. The population used by the Author is an active user in December 2018, namely 681 active users.

The sample is part of the number and characteristics of the population. If a large population and research are not possible to learn all that exists in the population, such as limited funds, energy and time, research can use samples taken from that population (Sugiyono, 2012). The sampling technique used in this study is a probability sampling technique with a type of simple random sampling. According to Sinulingga (2017), in probability sampling each element of the population is given the same opportunity to be withdrawn as a member of the sample. In Simple random sampling or often called unrestricted probability sampling each element of the population is treated equally in the sense that all have the same chosen opportunity even though the characteristics of each may not be the same. This method of sampling has a relatively small bias and provides high generalization capabilities. With the error rate that can be tolerated in this study is 5% and the confidence level is 95%, the sample size needed in this study is 252 respondents.

### **3.4 Data Processing and Analysis Techniques**

#### **a. Descriptive Statistics Analysis**

Descriptive statistics are research methods that try to describe and interpret objects as they are (Cresswell, 2004 in Sangadji, 2010). The aim is to systematically describe the facts, objects or subjects as they are with the aim of systematically describing the facts and characteristics of objects that are precisely examined.

#### **b. Servqual Measurement Process**

Servqual is used to measure the gap between user expectations and perceptions of a service. In servqual measurements the data used has two categories, namely expectations and perceptions, in the reading of perceptions interpreted as reality.

When using the servqual method, the most important process is to find the value of the gap score between expectation value and perception value.

#### **c. Kano Model Classification Process**

In the kano model process, the most important thing is to determine the classification of each service attribute. As an illustration, the process of classifying each service attribute so that each of the categories is included in the category of attractive, must-be, one-dimensional, indifferent, reverse and questionable. Each functional and dysfunctional question is searched for a cross over the answers to each question.

#### **d. The Process of Combining Servqual and Kano Model**

According to Tan and Pawitra (2001), kano model categorizes product or service attributes based on the relationship of the product and service to the needs of its users. If the existing attributes produce good values, it will satisfy the users. However, the kano model considers that the relationship between performance attributes and user satisfaction is not linear.

Entering the categories in the kano model to servqual can overcome these linear problems. Furthermore, priority actions to improve the performance of weak attributes can be determined by looking at each attribute that falls into the categories of the kano model. If there are weak attributes in the attractive category, this attribute should get priority improvements. If the weak attribute is included in the one-dimensional category or the must-be category, the lower attribute can be given. Combining kano and servqual models will cover the weaknesses of each method compared to when used separately.

## **IV. Results and Discussion**

### **4.1 Descriptive Analysis**

Based on the data shows the characteristics of respondents, namely Edulab students who became users of the edit application male sex numbered 104 people and female students numbered 194 people. Based on this, it is shown that the majority of respondents are female.

Grade VII students in junior high school numbered 1 person, IX junior high school amounted to 10 people, X high school numbered 17 people, XI SMA numbered 23 people, XII high school numbered 197 people and Alumni numbered 10 people. Based on this, it is shown that the majority of respondents are of the class XII of high school. In other words the majority of users of the edit application are high school students of class XII. This can be caused by the fact that they have a stronger priority and have higher motivation to start doing independent learning in an effort to prepare early to take the entrance test to state universities.

There are 236 students in the science field, 46 in the Social Sciences field, 6 in the IPC field and 10 students in the field. This can mean that students who do not have a field are still in junior high school.

The majority of students master the use of applications at the intermediate level with a total of 196 people, master the application at the basic level with a total of 34 people and master the application at the advanced level with a total of 68 people. In other words, the majority of edit application users master applications at the middle or mediocre level.

### **4.2 Results and Discussion**

#### **Results**

##### **a. Quality Attribute Gap Score**

That the results of the calculation of the gap score between the expected value and the value of reality indicate a gap. Almost all dimensions in the quality attribute have not met the expectations of the user editing application.

##### **b. Gap Score Web Application Design**

There is a gap between the expectations of users of the edit application and the perceived reality related to the variable web application design.

The web application design variable shows the attributes that are in the variable that is the question with codes X1, X4, X5, X6, X17. The variable web application design edit that gets the highest gap value is the question with code X4, which is about the edit view according to the type of online learning application. This can be important information for edit management that the dimensions of the web application design need to be improved, with the main focus on the display attributes of the application designed to be more attractive in accordance with the current Bimbel Online trend that is developing.

##### **c. Gap Score Easy Of Use**

There is a gap between the expectations of users of the edit application and the perceived reality regarding the variable easy of use.

The easy of use variable shows attribute attributes that are in variables, namely questions with codes X2, X3, X7, X8, X9. The variable easy of use edit that gets the highest gap value is the question with code X7, that is, the links between pages are clear and can be understood by the user. This shows that the easy of use dimension needs to be fundamentally improved. Users still find it difficult to understand the connectedness of one feature facility with other features in the edit application as their independent learning media.

##### **d. Gap Score Reliability**

There is a gap between the expectations of edit application users and the reality perceived by users of the edit application regarding the reliability variable.

Reliability variable shows attribute attributes which are in variables, namely questions with codes X10, X11, X12, X13, X14, X15. The reliability edit variable that gets the highest gap value is the question with X14 code which is the suitability of the subject matter in the edit application with the assignment material or student homework from the school. provide complete subject matter. Thus showing the subject matter in the edit application is not in accordance with user needs. This can be found in the content of the material sequence, the level of difficulty, the type of question and the purpose of the material on student understanding. These conditions can be of particular concern for edit management in increasing resources for the implementation of improved editing features in terms of conformity of teaching material.

#### **e. Gap Score System Availability**

There is a gap between the expectations of edit application users and the reality felt by users of the edit application regarding the availability system variable.

System availability variables show attribute attributes that are in variables namely questions with codes X16, X18, X19, X20, X21, X22, X23, X24. The availability edit system variable that gets the highest gap value is the question with the X20 code, namely the notification when the edit application updates occur.

#### **f. Kano Classification Model**

According to the Kano Model rules, the attributes included in the "A" or attractive category require an increase in the performance of the attribute because it will significantly increase user satisfaction. But if there is a decrease in performance, these conditions will not reduce the level of user satisfaction. The edit attributes that fall into this category are in the edit variable with the application design dimension. Editing management is advised to continue to improve the servqual dimension continuously by continuing to develop and innovate.

Attributes that are included in the category "M" or must have 7 service attributes that indicate that these attributes will not increase satisfaction if given because the user thinks it should have to be in the application. However, if it is not fulfilled, the edit user will feel extreme dissatisfaction. The edit attributes that fall into this category are in the edit variable with easy of use, reliability, and system availability dimensions. This requires management to maintain the function of each attribute. The effort is a minimum effort that must be done, because if the attribute is not there, the main function of the editing application as an online learning media or mobile learning basically has been lost according to the user's assessment.

Then for the "O" or one dimensional category has a linear relationship with the performance of attributes. That is, if the performance of the attribute is high, it will result in high user satisfaction editing, and vice versa if it is not fulfilled, the user will feel dissatisfied. The edit attributes that fall into this category are in the edit variable with the dimensions of application design, easy of use, reliability, and system availability. Thus, all attributes that exist in the edit variable require comprehensive attention, namely maintaining good performance, carrying out further development and innovation, and improving existing quality.

## **V. Discussion**

The purpose of this study is to provide advice and enter the management of Edulab about the quality of the current Edit application service and the steps that must be taken to improve the quality of its services. There is a servqual method found in four quality attributes determined based on literature review and FGD with the parties involved with the edit application. The four variables are 1) application design 2) easy of use 3) reliability and 4) system availability. For the attributes found in the application design variable, the average score score is 0.43. The attributes in the variaaebl easy of use get a gap score average of 0.44. Reliability attributes get an average gap score of 0.58, and finally the attributes in system availability get an average gap score of 0.60. Based on this, the variables needed to get attention and improvements are the dimensions of the web application design. The lowest gap score is in the system availability variable. However, improvements to these attributes need to be done because there are still gaps between expectations and perceptions that are felt by the user edit.

The author conducts further studies by conducting discussions with managers and several user editors regarding attributes that get the highest gap score, namely "Display edit according to the type of online learning" which is part of the variable web application design. The results of the discussion obtained information that until this research was conducted management had not yet gotten an experienced IT team and graphic designers in the development of learning applications.

Continuing the results of the servqual method, the Kano Model is used to complement the linearity of the assumptions of the method. After issuing attributes belonging to the indifferent category, there are 17 (seventeen) attributes which have an influence on increasing user edit satisfaction. Attribute attributes are grouped into attractive, one-dimensional and must-be classifications.

The results of the discussion are recommendations for edit management to be based on priority scale, with the following results:

a. Immediate improvement or top priority

Kano model that forms the basis of this recommendation is the attractive category because the impact on increasing user satisfaction will increase significantly if fulfilled. This category focuses on improving the design of the edit application display both on the main display of the application and the design of all the features in it. Management needs to make comparisons of the advantages and disadvantages of editing applications with other online learning applications, and then any weaknesses that are found will be immediately corrected in part or in the overall design that currently exists. The results of the improvements must reflect professionally managed applications, among others by strengthening co-branding cooperation and the existence of brand names from well-known figures in accordance with the field of education. In addition, the design of the content features are complemented and adapted to the needs of the user both at the school level and in science groups, namely Natural Sciences (IPA) and Social Sciences (IPS).

#### b. Maintain current quality and continuous improvement

Kano model that forms the basis of this recommendation is the category of must-be and one-dimensional because the attributes that fall into this category are functions and functions that are supposed to be maintained. Existing quality, if the performance increases or decreases otherwise it will have a direct effect on the level of user satisfaction using the edit application. The ease of using the application, the function of each feature icon that is appropriate, completeness and ease of understanding of all subjects, the accuracy of answers to questions and all valid features are examples that must be maintained. Then the application performance that needs to be improved continuously is an easier source thawing feature, speed in providing answers to consultation features, conformity of material in the application with material standards students learn at school, performance of all features, and availability of edit applications for all types of mobile phones. If these things continue to be celebrated, management will be able to maintain the number of active users and even increase the number of new users.

## V. Conclusion and Suggestion

### 5.1 Conclusion

Based on the results of the research discussed in this study, the authors can draw conclusions as follows:

1. Through the servqual method, it is obtained that edit service quality both in the dimensions of the application design, easy of use, reliability and system availability as a whole does not meet the expectations of users, so management needs to make overall improvement efforts by making priority scale based on starting attributes which has the highest to the lowest gap score.
2. The measurement results and assessment of edit service quality by using the servqual model, obtained from all three scorers can be obtained from the application application design and useful of use. Whereas the number of scorers can be obtained from system availability and reliability. The two variables that get the highest score get faster attention than the management in the repair process and increase the performance of the edit application.
3. From the results of the classification of kano model attributes, seven attributes included in the categorical category, seven categorical-dimensional attributes, three categories of extractive, and seven different attributes.
4. The effort to improve edit applications in accordance with the discussion results of the writing with edit management is based on the analysis of the servqual Method and the grouping categories from the kano model for the category extractive to be the step of the improvement as possible or the priority. The categories of speakers are emphasized on the best design and features in it.
5. Improvement efforts continue with innovations carried out on attributes that are included in different-dimensional categories.

### 5.2 Suggestion

Based on the results of this study, the author can provide suggestions such as the following:

1. Edit management needs to strive for improvement in the 17 attributes of application services in the development of strategies for increasing application.
2. The plan to launch the edit application as a new strategic business unit (SBU) edit can be implemented immediately. As soon as this is done, all ten computer repair improvements are carried out together with the development of technology and the online Bimbel model in the form of mobile learning currently developing.
3. Future research can use variables in more detailed research that are adjusted with organizational needs.

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