Improving A Quality Of Services Through Information System Model Of Academic Services Based On Customer Relationship Management At University

Wahyu Prima, Ganefri, Krismadinata, Rahmatul Hayati

*Abstract***: *This research aims at seeing the improvement a quality of services through information system model of academic service based on customer relationship management (CRM) at university. This research is a part of developing research through a research and development ADDIE model that consists of Analyze, doing needs analysis and literature review. Design, determining the purposes of model design and describing each components of model. Develop, developing products and focusing on group discussion and experts' reviews. Implement practicality test and effectively test. And Evaluate. This research only focuses on implementing, along with applying an information system model of academic service based on CRM at university. Subject of this research is Universitas Dharmas Indonesia, Sumatera Barat. Hypothesis testing done on this research is through Wilcoxon testing, because the data got is not normal distributed. Based on analysis result, it can be known that sig = 0,000 < 0,05. It can be said that Ha is rejected. Therefore, a quality of services towards students before and after applying the information system model of academic service based on CRM at university a significant improvement. Even this model is only implemented at one university, yet based on analysis result, this model can be implemented to other universities because it is flexible and dynamic, and thus it can matched to the university needs.***

Keywords: Information System, Academic Service, Customer Relationship Management.

I. INTRODUCTION

Level of academic quality at university is influenced by some factors: easy access, facility usage, and then interaction between lecturers and students [1]. The quality of services cannot be assessed completely based on company view but it must concern from customers views. Principle of the services quality must start from fulfill customers' needs and customers views towards the services got by themselves [2]. The quality of services given can be completed based on customers marking [3]. Therefore, the quality of services generally is as whole services system accepted by customers, and on its principle, the quality of services focuses on fulfill customers' needs and there is a determination to give the services based on customers' hopes. If the principle is applied on services at university, thus it will be a service at university dynamically and flexibility.

One of the criteria that determines the quality of Higher Education based on the Decree of the Republic of Indonesia Minister of Research, Technology and Higher Education concerning the classification and ranking of universities in Indonesia in 2015 is the quality of management. Management of higher education should be held flexible and dynamically so that to enable each university to develop based on their respective potential. The aim of management objectives is productivity and satisfaction [4]. The satisfaction can be seen from quality services to customers [2]. At Higher Education, students are the main customers [5], [6]. The academic success of future higher education depends on the ability of institutions to communicate with students to fulfill their needs [7]. Thus, the importance of a flexible and dynamic academic service, based on students' needs of students as the main customers at Higher Education.

The important things of academic services are as follows: it can provide information for students, especially prospective students (activities, costs, schedules, reputation and number of students per class). Then, it can help students to make decisions by understanding the needs and guidance of student learning, the system is supported with the existence of an information center (technical support or call center), good time management, having services (academic guidance, learning, information and others), having support from digital library services, and career counseling services [8].

Some results of the study state that there are several problems in academic services such as: lack of access to academic information which caused students to be reluctant to ask questions [9], Then. lack of information for stakeholders in marketing and promotion decision making [1], lack of information about universities for prospective students [10], and the number of college graduates who cannot find work according to their competencies [11].

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Retrieval Number F8561088619/2019©BEIESP
DOI: 10.35940/ijeat.F8561.088619
Journal Website: www.ijeat.org

2500

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication

Based on preliminary studies and some of the results of the above research, it can be said that a flexible and dynamic academic service information system model in universities is needed, so that it has a positive impact on the quality of academic services in Higher Education.

Many methods that have been used in solving service problems include the Total Quality Management method [12]–[16], Web Based Services [17], [18], and Customer Relationship Management (CRM) [7]. CRM methods is a combination of people, processes and technology that try to understand customers [19]. Some research results state that the application of CRM can increase customer loyalty [20]–[22], simplify the customer data collection process [19] and can maintain organizational profits [23]. From the results of these studies it can be seen that the application of CRM seeks to optimize the profits of companies or organizations by establishing closer relationships (Customer intimacy) with customers.

In the previous research, the CRM concept that was developed only on the learning system [24], for this reason it is necessary to develop a broader service model and be able to meet students' needs. One of them is an academic service system based on CRM.

The CRM service information system model is one of the models developed and based on needs at universities, because this model uses CRM principles that prioritize to customers, relationships, and management. CRM is a strategy for obtaining, maintaining, and increasing customers that is beneficial for organizations [2], [25], [26]. The application of CRM methods is very effective in improving service quality [27]. In general, CRM has 3 (three) stages for each cycle. Each stage is interrelated with each other [28], namely: 1) Acquiring, new customers are obtained by providing easy access to information, new innovations, and attractive services; 2) Enhancing, improve relationships with existing customers through providing good service to their customers; 3) Retaining, keep students trying to get customer loyalty by listening to customer opinions and trying to fulfill customers' needs in the service process. By applying the CRM principle into the academic service system model, it is expected to have a positive influence on academic services in Higher Education. The CRM-based academic service information system model contains supporting elements of the modified model based on needs analysis that have been carried out [29]. In applying the model, commitment from the university is needed, commitment from lecturers and students, as well as adequate facilities and infrastructure. Figure 1 is a CRM-based academic service information system model at universities.

Dealing to Figure 1, it can be seen that, each model component is presented based on CRM principles. With the application of these models in higher education, it is expected to improve the quality of services at universities.

II. METHODOLOGY

This research is a part of research and development (R&D) by applying ADDIE model that consists of 5 stages. First is analyze. In this stage, the researcher does needs analyzing and literature review. Second is designing. Researcher determines the purposes of model design and describes each components of model. Third is developing. Researcher develops products and focuses on group discussion and experts' reviews. Fourth is implementing. In this stage, researcher does practicality test and effectively test. Last one is evaluating. This article only focuses on implementation stage that is the effect of applying information system model of academic service based on CRM at university towards the quality services. Subject on this research is Universitas Dharmas Indonesia (UNDHARI) which is one of private university in Sumatera Barat, Indonesia. This research involves all active students and lecturers at UNDHARI that consist of 1.074 of students and 74 of lecturers. To determine the sample on this research, Slovin technique is used [30]. This study uses the Slovin formula because in sampling, the number must be representative so that the results of the study can be generalized and the calculations do not require a table of sample quantities, but can be done by using simple formulas and calculations.

Referring to the sample through Slovin formula, the samples in this study were 291 students and 62 lecturers. The hypothesis in this study as follows:

H_0: There is no improvement of service quality between before and after applying information system model of academic service at universities.

H_a: There is an increase of service quality between before and after applying information system model of academic service at universities

Hypothesis testing is done by using Wilcoxon test because the data got is not normally distributed.

III. RESULTS

This research is a part of implementing phase of information system model of academic service based on CRM. This phase is focused to see the improvement academic service at university after applying information system model of academic service based on CRM. Based on hypothesis test is got the data that there is an increase of academic services through the information system model of academic service based on CRM. The improvement of service quality on average between before and after applying information system model of academic service can be seen on Table 1. For more clearly, it can be seen on Figure 2.

Based on Figure 2 above, it can be seen that there is improvement the quality of service between before and after treatment given. Total score of each respondent to service quality can be also seen on Figure 3 below.

Referring to Figure 3, it can be concluded that there is improvement scores for each respondent between before and after applying information system model of academic service based on CRM. Furthermore, based on the results of hypothesis testing, there is also an increase to the quality of services between before and after applying the model.

Before statistics testing for hypothesis testing, the test requirements for analysis were first carried out from the results of the questionnaire on the service quality to students.

The results of the analysis requirements test can be seen on Table 2.

Dealing to Table 2, it can be seen that the value of Sig. = 0,000. Based on the testing criteria, if the value of Sig. > α where the value of α = 0.05, then the data is normally distributed. Based on Table 2, it can be seen that the value of Sig. <0.05, which is 0,000 <0.05. Thus it can be concluded that the data is not normally distributed, so that hypothesis testing used a nonparametric test, Wilcoxon test. The results of the scores before and after giving treatment can be seen on Table 3.
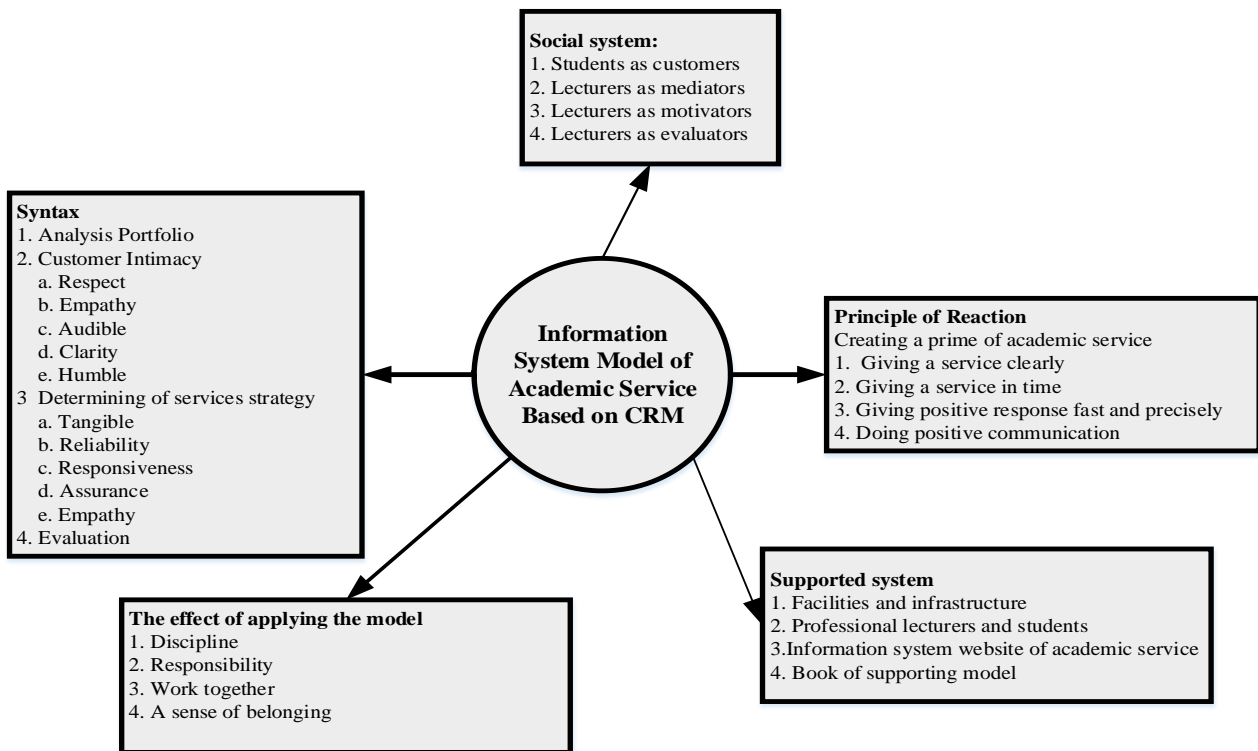

Fig 1. Information System Model of Academic Service Based on CRM at University

Table 1. Quality of Service Between Before and After Applying the Model

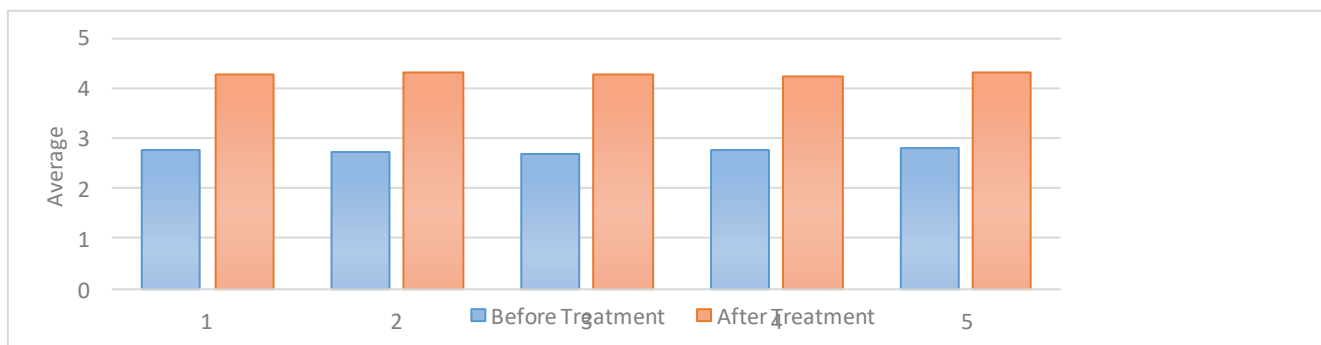| No.	Statement	Score		Average	
		Before	After	Before	After
1	Academic service gives a service to me accurately, trustfully, and high accuracy	819	1257	2.8	4.32
2	academic service gives a service precisely (Responsif) to me through clear information	803	1268	2.76	4.36
3	academic service gives garantee and certainty to encourage students' trustworthiness	792	1247	2.72	4.29
4	Academic service knows my needs as a student	815	1245	2.8	4.28
5	System procedure of academic service system is not play around berbelit-belit	824	1262	2.83	4.34

Fig. 1. Average the Quality of Services Between Before and After Applying the Model
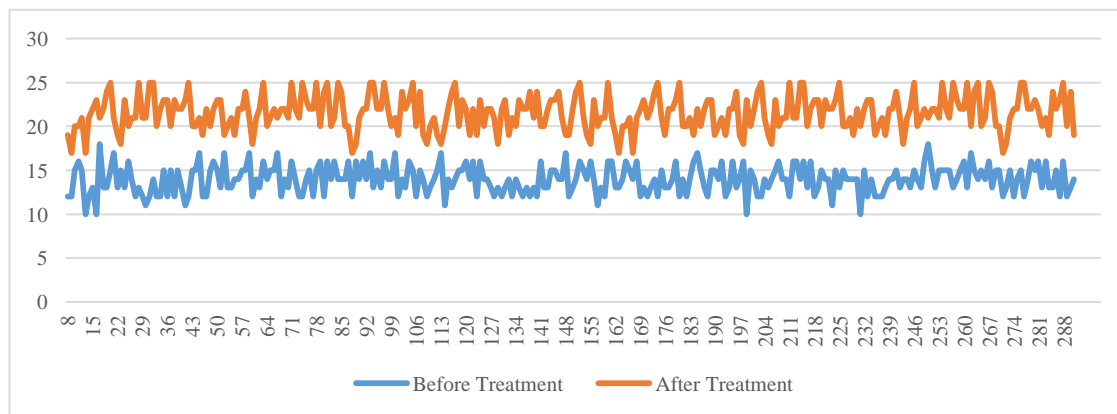
Fig. 2. Score of Each Respondent Between Before and After Treatment

Table 2. Normality Testing

\No	Applying an information system model of academic service based on CRM	Kolmogorov-Smirnov[a] Sig.	Explanation
1	Before Treatment	.000	Data is not normal distributed
2	After Treatment	.000	Data is not normal distributed

Table 3. Ranks

		N	Mean Ranks	Sum of Ranks
fter - Before	Negative Ranks	0[a]	.00	.00
	Positive Ranks	291[b]	146.00	42486.00
	Ties	0[c]		
	Total	291		

a. After < Before
b. After > Before
c. After = Before

Based on Table 3, it can be concluded that: 1) Negative Ranks: there is no sample with a group value that is lower than before treatment; 2) Positive Ranks: samples with groups after giving treatment are higher than before treatment; and 3) Ties: there is no same value between groups after and before giving treatment. Furthermore, the results of the Wilcoxon calculation can be seen in Table 4.

Table 4. Result of Wilcoxon Test

	After– Before
Z	-14.811[b]
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks

Based on Table 4, it can be seen that the Sig value = .000. Based on the testing criteria, if the value of the Sig. > 0.05; then Ho is accepted. Thus, the value of Sig. <0.05; namely 0.000 <0.05. So it can be concluded that Ho is rejected, so that there is an increase to service quality between before and after applying information system model based of academic service at university.

Factors that cause the increase of quality of academic services are because the existence of an academic service information system model that is faster, more precise, accurate, and flexible. This can be seen from the syntax of the model where each syntax can be applied according to the needs at university. Based on the results of the development of CRM that is based on information system models and have been modified from model theory [29], namely: syntax model, social system, reaction principle, support system model and the impact of the application of the model. Information system model of academic service based on CRM has 5 (five) syntax models, namely: (1) analysis portfolio, (2) customer intimacy, customer intimacy must pay attention to five communication laws, namely: (a) respect, (b) empathy, (c) audible, (d) clarity, and (e) humble, (3) determining of services strategy, to determining of services strategy, it must meet 5 (five) indicators, namely: (a) tangible, (b) reliability, (c) responsiveness, (d) assurance, and (e) empathy and (4) evaluation. In the student model as the main customer, and the lecturer as a mediator, motivator, and evaluator.

On the first syntax, namely portfolio analysis supported by an academic information system website, universities can collect portfolio data from the website and then analyze the data obtained. This facilitates the institutions in analyzing students' portfolios which can then be used as a reference to determine academic service strategies (syntax 3).

However, so that the data obtained is accurate and precise, after analyzing the data obtained, it is necessary to establish connect with students (syntax 2) to obtain accurate and precise information based on students' needs. After that, it is determined the appropriate service strategy (syntax 3). The strategy given is tailored to the students' needs as the main customers at college. After the service strategy has been determined and implemented according to the chosen strategy, it is important to evaluate the services provided (syntax 4). This is important to be done, so that the weaknesses that arise can be continually improved according to the needs.

At university, education services play a vital role in developing and enhancing human resources.

For this reason, the success of educational services is determined by providing quality services to users of educational services, namely students and public [31]. Quality academic services can improve student satisfaction [32]. Academic service is said to be of high quality if it suits to the students' needs [33]. This is based on CRM principle that prioritizes students as primary customers. The quality of academic services is the value given by the students to what extent academic services are provided, with the meaning of quality academic services if they fit their needs [2]. The information system model based on CRM is a service concept that is appropriately applied in academic services at Higher Education. It rests on the concept of education that education aims to fulfill individual needs for fulfilling his/her entire life [34], [35]. Thus, it can be concluded that one of the factors that makes the quality of academic services at university increased from the previous is to make students as the main customers and strategies given to each student based on students' needs as explained in the third syntax on the information service system model based on CRM.

IV. CONCLUSION

Based on analysis result, it can be said that there is improvement of quality of services to students before and after applying the information model system of academic service based on CRM. One factor cause this improvement is because there is the information model system of academic service that is fast, precise, accurate, and flexible, and it is based on students needs as main customers at university.

ACKNOWLEDGMENT

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Retrieval Number F8561088619/2019©BEIESP
DOI: 10.35940/ijeat.F8561.088619
Journal Website: www.ijeat.org

2504

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication

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