

Applying SERVQUAL for Measuring Customer Satisfaction on Institute for Research and Community Service: A Case Studi at Universitas Muhammadiyah Surakarta

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Abstract. *This study aims to design a valid instrument for measuring the satisfaction of internal and external users on service quality provided by an institute for research and community service (LPPM) at a university. The SERVQUAL model is applied and a case study was conducted at Universitas Muhammadiyah Surakarta. Twenty-eight research attributes and twenty attributes of community services have been developed to measure the LPPM service quality based on five dimensions criteria namely tangible, reliability, responsiveness, assurance, and empathy. The developed attributes were validated by experts, e.g., head of LPPM and his staff. Further, using bivariate Pearson correlation and Cronbach alpha those attributes were tested for validity and reliability using SPSS 23. The result showed that all attributes in the instrument were valid and reliable. Furthermore, based on the Actual SERVQUAL Score (ASC), all attributes have score more than 75%, which can be classified as better than "good" according to the UMS Quality Assurance Agency (LJM). It indicates that the customers are satisfied with the services. However, based on the service quality gap analysis (i.e., gap between the perceptions and expectations of users), all statements showed negative results, which means that the perception is lower than expectation. Hence, improvements are still required especially to those attributes with high gap.*

Keywords: *actual service score, gap analysis, customer satisfaction, servqual*

I. INTRODUCTION

Higher education institutions (HEIs) have an immense role in human resource development. Based on Indonesian Law on Higher Education (Law No. 12/2012), university is an academic unit that organizes higher education. Thousands of universities in Indonesia have been accredited and the results show a necessity to improve the quality. Government through National Accreditation Board for Higher Education (BAN-PT) grades the quality of either public or private universities based on accreditation instrument called "nine accreditation criteria". It gives

'pressure' to universities and influence on how they manage their processes (Tari and Dick 2016) since the grade given by government may impact the student recruitment effort (Tambi, Ghazali, and Yahya 2008). Therefore, to remain competitive, universities willingness to apply the quality practice procedures (Sadiq Sohail, Rajadurai, and Azlin Abdul Rahman 2003; Sultan and Wong 2014) increase gradually.

In the "nine accreditation criteria", having feedback from users regarding the service quality provided by universities is one of crucial factors. There is a relation between the service quality and customer satisfaction (Parasuraman, Zeithaml, and Berry 1988; Tjiptono and Chandra 2016), hence this factor needs to be assessed and improve. Studies on designing instrument to measure the service quality in higher education have been quite intensively done by scholars (to name a few Aicha 2018; Annamdevula and Bellamkonda 2016; Ferreira et al. 2021; Khoo, Ha, and McGregor 2017; Munteanu et al. 2010; Purnama and Sailah 2017; Sarsale and Caday 2020; Tan, Choong, and Chen 2022; Waugh 2002 and Yanova 2015). However, instrument for evaluating the service quality of research and community service (P2M) that required by one of

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the nine accreditation criteria (BAN-PT 2019) have not been well established. This study is aimed to design the instrument for measuring these criteria. Principally, P2M in a higher education institution is aimed at developing science and technology, as well as improving the welfare of society, to improve the competitiveness of the nation (UU RI No 12 tahun 2012; Kemendikbud 2020). The obligation for HEIs to conduct research and community services are written in the law of higher education (UU RI No 20 tahun 2003). In HEIs, an institute for research and community service is responsible to provide the P2M services. Hence the business process of this unit will be considered while developing the service quality instrument.

Proposed by Parasuraman et al. 1988, a method called SERVQUAL has been widely applied to measure the quality of services. The SERVEQUAL is used to assessed the educational service quality in several HEIs, such as russian higher education (Galeeva 2016), Ghanaian private universities (Banahene, Ahudey, and Asamoah 2017), Tabriz university of medical science (Ghavimi et al. 2017), Philippine state university (Sarsale and Caday 2020), higher education in Bangladesh (Mamun-ur-Rashid and Rhman 2017), information system at Kadir University (Rahayu, Santoso, and Rahayuningsih 2019) and international branch campuses in UAE (Datta and Vardhan 2017). In this study, the SERVQUAL is applied to measure the quality of service provided by the research and community service unit at Universitas Muhammadiyah Surakarta (UMS).

UMS is one of the private universities in Indonesia. The activities of research and community services in UMS is managed by the Institute for Research and Community Services or called "LPPM-UMS". Currently, LPPM-UMS provides P2M service for internal customers (lecturers) and external customers (P2M partnerships). The customer satisfaction is a specific evaluation of the overall service offered by provider hence it will be assessed based on customers experiences during the service delivery process (Ikrawan, Ariyanto, and Harijanto 2015). In this case, the customers have an important role in

determining the servqual achievement. Further, the five dimensions of service quality proposed by (Parasuraman et al. 1988), namely reliability, responsiveness, assurance, tangible, and empathy were applied in this study.

II. RESEARCH METHOD

This study was conducted through 3 stages; 1) characterizing the system, 2) designing the instrument to measure the satisfaction, 3) testing the instrument, 4) collecting the data and finally 5) analyzing the data.

System characterization

In this stage, the business processes that exist in LPPM-UMS were identified as well as users or customers that are involved in each activity. The method used in this stage is to conduct a focus group discussion (LPPM staff and academicians) and explore literatures either those that relevant to the research material or those that relate to LPPM UMS research and community service strategic and master plan. The results of the system characterization are definitive users or customers who are involved in research and community service activities as well as business processes in research and community service activities.

Designing the instrument

As previously mentioned, the instruments for measuring the research and community service criteria is based on business processes and services provided to customers such as provision of facilities, material standards, speed of service, process of reviewing research and community services, funding, mentoring, outreach for lecturers, and the responses of LPPM-UMS as service provider. At this stage, the instruments based on LPPM-UMS business processes, were categorized into two group of respondents, namely lecturers and partners. This stage yields 37 attributes for measuring research service quality as well as 35 attributes for measuring the quality of community service at lecturer group. On the other side, at partner group, 8 service quality attributes were defined for both research

and community service. Further, a discussion with experts (LPPM staff and academician) was established and result in 20 research and 18 community service attributes for measuring lecturers' satisfaction, while there was no change in the number of partners' attributes (remaining 8 attributes). Those service quality attributes can be seen in Appendix.

Testing the validity and reliability of instrument

At this stage, the instruments were tested. The content validation was carried out through expert judgment with the chairman of the Institute for Research and Community Service (LPPM) UMS as the expert. Meanwhile, the validity and reliability of instrument were analyzed using the SPSS (Helena et al. 2015). Based on the validity test, all attributes are declared valid with Rcount is greater than Rtable (R0.05,28=0.361) for each attribute in lecturer's group. Similarly, at partner group Rcount is also higher than Rtable (R0.05,18=0.4438) for each research and community service attributes. Reliability testing shows that all statements are reliable since the coefficient of Cronbach's alpha is greater than 0.70, hence the questionnaire is valid and reliable as seen at Table 1.

Conducting surveys and data collection

The instrument that had been tested for validity and reliability was distributed to respondents. The survey was in the form of a questionnaire that contained an assessment for perceptions (satisfaction) and expectations (importance) using a 1-5 scale likert as well as feedback for each criterion (Berry and Zeithaml 1991). The responses given by the respondents were collected for data processing and further

analysis. The last data was obtained on June 26, 2020 at 5:33PM.

Data analysis

At this stage, the collected data were calculated and analyzed. The scale of importance and satisfaction from users (lecturers and partners) and also feedback was used for evaluating the LPPM based on the research and community service criteria. The data obtained from the system were classified according to the group of respondents. Subsequently, the mean value of importance and satisfaction of each statement and dimension was calculated, and then the gap between user perceptions and expectations as well as the gap of each quality dimension was determined using the equation (Zeithaml, Parasuraman, and Berry 1990), as seen at Equation 1.

$$Servqual (GAP) score = Perception score - Expectation score \tag{1}$$

In addition to the gap, the Actual SERVQUAL Score (ASC) is also calculated as it represents the actual value of the services that have been provided so far. The Quality Assurance Agency of UMS as the survey manager establishes the ASC value of above 75% to denote the good services of a unit. The formula for calculating ASC is as Equation 2.

$$ASC = \left(\frac{Perception Score}{Expectation Score} \right) \times 100\% \tag{2}$$

III. RESULT AND DISCUSSION

SERVQUAL analysis

The respondents who filled out the research questionnaire were 96 respondents with details of 76 lecturers and 20 partners. Meanwhile, the

Table 1. The Result of Reliability Testing

Reliability Statistics		Respondent
Cronbach's Alpha	N of attributes	
.945	20	Lecturer (Research)
.921	8	Partner (Research)
.912	18	Lecturer (Community services)
.930	8	Partner (Community services)

Table 2. Calculation of the Gap and ASC Lecturers

Research Criteria					Community Service				
Code	I/E	S/P	GAP	ASC	Code	I/E	S/P	GAP	ASC
P 1	4.724	4.45	-0.28	94%	P 1	4.88	4.6	-0.28	94%
P 2	4.76	4.36	-0.41	91%	P 2	4.8	4.55	-0.25	95%
P 3	4.8	4.64	-0.16	97%	P 3	4.78	4.48	-0.3	94%
P 4	4.74	4.46	-0.28	94%	P 4	4.8	4.38	-0.43	91%
P 5	4.8	4.36	-0.45	91%	P 5	4.63	4.05	-0.58	88%
P 6	4.59	4.17	-0.42	91%	P 6	4.73	4.38	-0.35	93%
P 7	4.68	4.38	-0.3	94%	P 7	4.88	4.5	-0.38	92%
P 8	4.78	4.36	-0.42	91%	P 8	4.78	4.48	-0.3	94%
P 9	4.66	4.12	-0.54	88%	P 9	4.68	4.3	-0.38	92%
P 10	4.72	4.32	-0.41	91%	P 10	4.63	4.35	-0.28	94%
P 11	4.78	4.3	-0.47	90%	P 11	4.78	4.28	-0.5	90%
P 12	4.84	4.51	-0.33	93%	P 12	4.85	4.43	-0.43	91%
P 13	4.78	4.51	-0.26	94%	P 13	4.73	4.6	-0.13	97%
P 14	4.72	4.51	-0.21	96%	P 14	4.65	4.45	-0.2	96%
P 15	4.66	4.14	-0.51	89%	P 15	4.68	4.4	-0.27	94%
P 16	4.72	4.58	-0.14	97%	P 16	4.8	4.5	-0.3	94%
P 17	4.49	4.04	-0.45	90%	P 17	4.48	4.08	-0.4	91%
P 18	4.54	4.16	-0.38	92%	P 18	4.55	4.25	-0.3	93%
P19	4.61	4.16	-0.45	90%					
P20	4.59	4.22	-0.37	92%					
Mean	4.7	4.34	-0.36	92%	Mean	4.73	4.39	-0.33	93%

I/E = Importance/Expectation S/P = Satisfaction/Perception

respondents who filled out the community questionnaire were 60 respondents with details of 40 lecturers and 20 partners. The results of the calculation of the gap value and actual service score are listed in Table 2.

Refers to Table 2, the calculations on lecturer’s attributes in research criteria, the average of the lecturer satisfaction is greater than four, indicating that the lecturers are satisfied with the services provided by the LPPM-UMS. Nevertheless, based on the gap value, all statements show negative value. The gap value is caused by the high expectations of lecturers regarding the service, particularly in the statement of "LPPM-UMS disseminates the research master plan and road map to lecturers/researchers" (Attribute P 9). The gap value is 0.54, which is the highest gap. LPPM-UMS should more often disseminate the research road map to lecturers in order to minimize the gap between expectation and perception. Based on the calculation of the Actual Servqual Score (ASC),

each statement has the value of greater than 75% with a mean of 92%.

Refers to Table 2 about the calculation of the lecturer community services attributes, the average of lecturer satisfaction is also greater than four, indicating that as well as the research service, the lecturers are satisfied with the services provided by the LPPM-UMS during the community service activities. However, the gap value shows that all statements are negative, indicating that an improvement is still needed since there is a gap between perception and expectation, particularly in providing the database of community services that has been implemented as a guideline (attribute P 5) with the gap value of 0.58. Based on the Actual Servqual Score (ASC) of each statement, the results are greater than 75% with a mean of 93%, which means that the service has been good.

Refers to Table 3, the calculations on research partners attributes in research criteria, the average value of satisfaction is greater than four, implying that research partners are satisfied

Table 3. Calculation of the Gap and ASC Partner

Code	I/E	S/P	GAP	ASC	Code	I/E	S/P	GAP	ASC
Research Criteria					Community Service				
P 21	4.45	4.1	-0.35	92%	P 19	4.21	3.84	-0.37	91%
P 22	4.35	4.25	-0.1	98%	P 20	4.21	3.95	-0.26	94%
P 23	4.35	4.3	-0.05	99%	P 21	4.21	4.21	0	100%
P 24	4.35	4.25	-0.1	98%	P 22	4	4.11	0.11	103%
P 25	4.4	4.05	-0.35	92%	P 23	4.16	3.95	-0.21	95%
P 26	4.55	4.35	-0.2	96%	P 24	4.26	4.32	0.05	101%
P 27	4.3	4.05	-0.25	94%	P 25	4.11	3.89	-0.21	95%
P 28	4.45	4.25	-0.2	96%	P 26	4.26	4	-0.26	94%
Mean	4.4	4.2	-0.2	95%	Mean	4.18	4.03	-0.14	97%

I/E = Importance/Expectation

S/P = Satisfaction/Perception

with the services provided by the LPPM-UMS. However, similar to Table 2, the gap calculation shows that all statements have negative value, indicating research partners have very high expectations regarding the services, particularly in P 21 (LPPM-UMS provides an understandable and accessible information system for partners) and P 25 (LPPM-UMS responds to partner complaints appropriately and effectively). The statements have the highest gap of 0.35, showing the requirement for LPPM to improve information systems such as providing access to research dissemination for partners and responding to partner requests rapidly and appropriately. Based on the Actual Servqual Score (ASC), each statement has shown results greater than 75% with a mean value of 95%.

Still from Table 3, the calculation of partner research attributes about the community services, shows that among all statements, only three attributes have positive gap value, implying that the services provided by LPPM have not fulfilled all expectations of partners. Even, four attributes (P19, P20, P23 and P25) show that the partners are just satisfied because the score is still below 4. The attributes with positive gap value are P21 (0.00) "LPPM is able to utilize the facilities provided by the university effectively during the implementation of community services", P22 (0.11) "Community services are carried out on time according to a predetermined schedule", and P24 (0.05) "The assurance of security and convenience to establish collaboration during the implementation of community service".

Meanwhile, the statement with the highest negative gap value is statement P19 (-0.37) "LPPM provides an understandable and accessible information system regarding the procedure of community services. Therefore, the information is conveyed properly to partners". It indicates that LPPM must improve the information systems (e.g., product marketing systems), carry out procedures that have been planned in advance, and improve communication with partners. However, based on the calculation of the Actual Servqual Score (ASC) of each statement, the scores are greater than 75% with a mean value of 97%, indicating that the services are quite good.

Feedback analysis

Feedback is grouped based on responses that have the same aim and purpose. Feedback on the research criteria is presented in Figure 1.

Figure 1a demonstrates the feedback of lecturers that seven categories of services in research criteria must be improved. The service with the highest percentage shows the urgency to improve information systems and to enhance socialization (29%). In this context, socialization is defined as the dissemination of research implementation materials, motivation to conduct research, and socialization of other activities. Subsequently, lecturer/researcher feedback also includes the suggestions to increase incentive/funding (20%) and to improve facilities (10%), assistance and punctuality (5%), and hospitality (2%).

Furthermore, the feedback of lectures regarding the community service criteria is

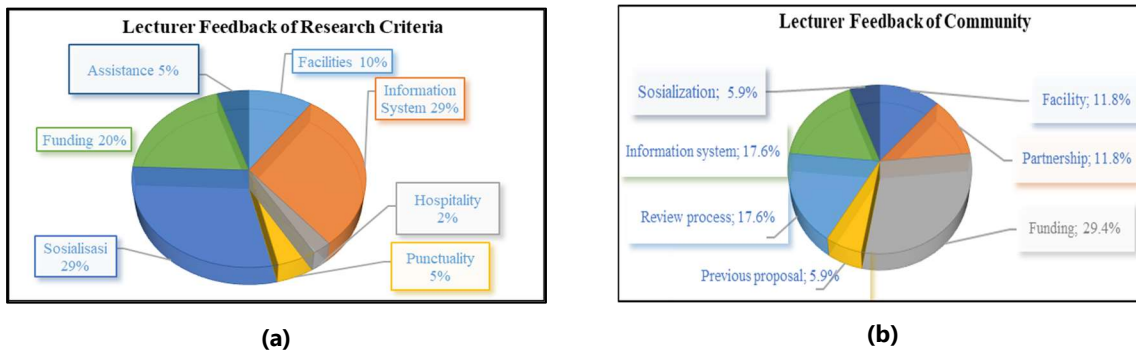


Figure 1. Lecturer's Feedback of (a) Research Criteria and (b) Community Services

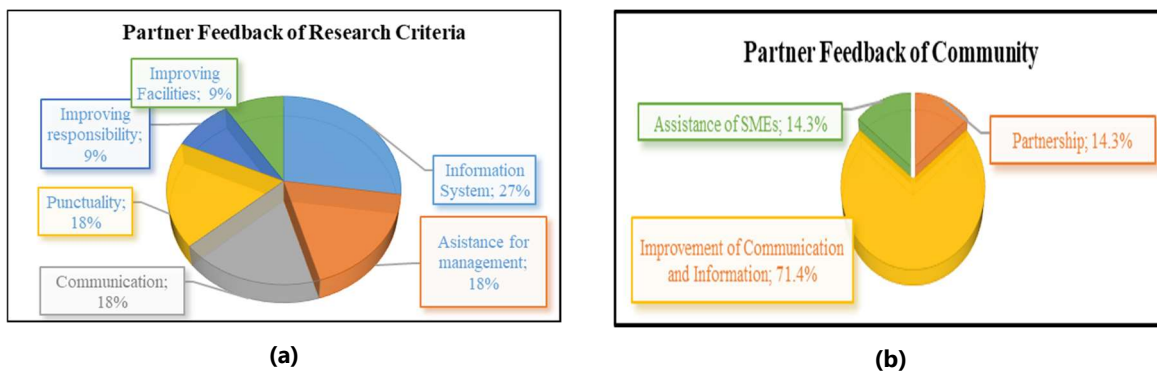


Figure 2. Partner's Feedback of (a) Research Criteria and (b) Community Service

presented in Figure 1b. Seven categories of services are underlined. The feedback with the highest percentage includes the suggestions to increase funding (29.4%), to improve the information system including the emphasis on the proposal review process (17.6%), to improve facilities and partnership (11.8%), and to prepare proposals in advance and to frequently disseminate information related to community services.

Figure 2 shows the feedback of partner in research criteria and community service. Based on the priority of feedback in research criteria, the partners of research recommend the LPPM to particularly improve the information system (27%), assistance (18%), punctuality (18%), communication (18%), facilities (9%), and responsiveness (9%). The largest percentage of feedback given by lecturers and partners is the same as the statement with the highest gap value, in which both lecturers and research partners suggest the LPPM to improve information system

and socialization/dissemination (research guides, road maps, proposal-related schedule, and funding schemes).

Based on the Figure 2 about feedback of partner in community services, most of the partners (71.4%) suggest improving the information and communication system between the LPPM and partners, to increase the assistance of SMEs, and to increase cooperation with their respective partners (14.3%). The largest percentage of feedback given by partners is the same with the statement with the highest gap value, namely that LPPM improves its information system by updating information about service programs on a regular basis.

IV. CONCLUSION

An instrument for measuring the customer satisfaction in service quality provided by LPPM-UMS has been created. In general, the SERVQUAL score shows that the lecturers and partners are

satisfied in having research collaboration with the LPPM-UMS, however, still there are most of attributes have negative gap values, indicating that the expectation is higher than perception hence improvements are still needed to elevate the satisfaction. Furthermore, the lecturer feedback of open-ended question emphasizes the necessity for the LPPM to improve the information system and socialization to lecturers particularly those with no previous experience. The partners also recommend the LPPM to improve its information system. The feedback given by the respondent is the same as the attribute with the highest gap value. It indicates that the services provided by the LPPM are relatively good yet they have not met the user expectations. Essentially, improvement is required to minimize the gap value as well as to meet user expectations.

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