Instrument Development for Measuring the Satisfaction Level from Service Provided by Administrative Staff of FMIPA UNNES

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Abstract. This research aims to develop a valid and reliable measuring instrument to measure the satisfaction level from service provided by the administrative staff of FMIPA UNNES, as an effort to improve the service quality of higher education institutions. A research and development model, ADDIE, was applied in this research. Developed instruments were 20 questions that represented certain indicators, which were derived from 5 dimensions (1) *tangible*, (2) *responsiveness*, (3) *reliability*, (4) *assurance*, and (5) *emphaty*. Construct validity of the questioner was assessed by 2 experts and analysed using Confirmatory Factor Analysis (CFA). Internal reliability of the instruments was measured using Alfa Cronbach coefficient. These developed instruments were tested on 531 respondents that represented the user of the service. Results from expert testing stated that the instruments were proper for use with revisions. CFA results showed that all loading factors scored above 0.3 on path diagram. According to these results, the score for goodness of fit and measurement model fit were considered fulfilled. The alpha score for internal reliability analysis was 0,98 or was considered has high reliability. The conclusion of this research is the measuring instrument for satisfaction level of service provided by the administrative staff of FMIPA UNNES is valid and reliable.

Key words: instrument development; satisfaction levels; administrative staff.

INTRODUCTION

According to Undang Undang no. 12 year 2012 on Higher Education, it is stated that the management of higher education institutions must be aimed to create a healthy internal management that ensures the quality of each higher education institution. Aside from lecturers, administrative staffs also take part in the management of higher education institutions. Based on UU RI no. 20 year 2003 on National Education System Article 39 (1), administrative staff are in charge of administrating management, development, supervision, and technical service to support teaching-learning activities in each educational unit, especially in higher education institutions. On faculty level, administrative staffs hold a major role in organizing the management of higher education institutions. By applying professionalism aspect during the duty, administrative staffs are expected to provide proper quality assurance in implementing the core three pillars of higher education institutions or Tri Dharma Perguruan Tinggi.

Administrative staffs of FMIPA UNNES cover several positions, including laboratory technicians, librarians, and administrative officers. In 2020, the number of administrative staffs in FMIPA UNNES were 53; 12 of which has functional position as education laboratory technician (PLP) and 7 of which are master graduates. Based on the educational background and the competency, administrative staffs of FMIPA UNNES are considered qualified. Administrative staffs of FMIPA UNNES provides several service types, including academic and student administration, employee affair, accounting, and laboratory services. Lecturers, students, management board of study program, alumni, and public people are the users

of their service.

Despite being supported with qualified human resources with decent and proper infrastructures, administrative staff performance must be evaluated or measured. Quality measurement is a core element in providing a better, more efficient, and more effective service. The service quality not only covers academic service, but also nonacademic service provided by the staffs (Mustikasari, 2019).

Customer satisfaction is an a discrepancy between expectation and performance that can be felt (Supranto, 2011). Satisfaction is a certain level where people compare performance from the service they experience and expectation they have before (Kotler & Keller, 2012). Customers will be satisfied upon receiving items or services that meet their expectations (Suharta, 2017).

Service quality is affected by two main factors, which are perceived service and expected service, both are coming from customers. Quality services must be customer oriented. Customer satisfaction level on services can be measured from the discrepancy of expected service and perceived service from customer on service they received (Parasuraman *et al.*, 1993).

There are five dimensions that incorporate service quality aspect, including tangible, reliability, responsiveness, assurance, and empathy (Parasuraman *et al.*, 1998). Based on the user viewpoint, there are five factors that affect service quality: (1) service core or service product content, (2) human aspects, including reliability, assurance, tangible, empathy, and responsiveness, (3) service system, applicable procedures, and service-supporting technology, (4) tangible aspects, including service tools, employee appearance, and servicescape that supports the service itself, and (5) social responsibility, which is ethical behavior from service provider (Sureshchandar *et al.* 2002).

In order to analyse customer satisfaction level, a valid and reliable measuring instrument is required. The instrument can be comprised of a questionnaire that encompasses satisfaction level on academic and nonacademic services. In 2020, Quality Assurance Task Force of FMIPA UNNES developed an information system to measure customer satisfaction level on services provided by faculty. The developed system has offered detailed informations on customer satisfaction level of service provided by FMIPA UNNES, coming from inside or outside of the campus. However, a specific instrument that solely measure satisfaction index of the service provided by administration staffs is not available yet on the system.

Considering the importance of service satisfaction index, a valid and reliable measuring instrument is required to discover the customer satisfaction level towards academic and nonacademic services provided by administrative staffs. This research aims to develop a measuring instrument of service provided by administrative staffs of FMIPA UNNES, which covers administrative and laboratory services. The measuring instrument includes construct validity that uses expert analysis result, confirmatory factors based on (1) tangible, (2) responsiveness, (3) reliability, (4) assurance, (5) emphaty dimension, and internal reliability consistency that applies Alpha Cronbach coefficient. The following instrument can be incorporated to the previously developed service survey information system.

METHOD

This is a development research that used ADDIE model (Branch 2009) that covered several steps; Assessment/Analysis step to identify and decide the purpose of instrument development; Design to arrange plans for instrument development through data verification to list all requirements that needed to be included in the instrument. The data requirement was grouped into five service quality dimensions, comprises of (1) tangible, (2) reliability, (3) responsiveness, (4) assurance, (5) emphaty; Development step to implement instrument design that had been created on the previous step, which came in question items made according to dimensions of established service quality; Implementation step where the instrument was tested by experts and respondents; and final step, Evaluation, to evaluate the developed construct validity and instrument reliability. The analysis result will be applied as the basic for revision prior to eligibility statement for the instrument.

Sample and data collection

Sample for this research were representatives for all types of user or customer, which were lecturers, students, management board of study program, alumni, and public people. All data were collected through online questionnaire form in https://bit.ly/LayananTendikFMIPA.

Data Analysis

Construct validity test was performed by two parties, which were experts and user candidate.

All experts tested on the conformity of developed question items available in the questionnaire upon the purpose of instrument making. Based on the analysis results, experts suggested on product revision prior to public test. Indicators of a certain instruments were considered valid when experts had approved the instrument content or format without revision. The construct validity from respondents was analysed using Confirmatory Factor Analysis (CFA) by applying LISREL 8.70 software (Hartono and Muchtar, 2017). A variable was said to achieve good construct validity it met the required goodness of fit and measurement model fit. Internal reliability was tested using Alpha Cronbach equation in SPSS software. Reliability coefficient, that ranged between 0-1, stated the level of reliability. Score range for Alpha Cronbach: alpha < 0,50 had low reliability, 0,50 < alpha < 0,70 had moderate reliability, and > 0,70 had high reliability level (Yusup, 2018).

RESULTS AND DISCUSSION

Analysis results coming from two experts, who were an evaluation expert and a representative from Quality Assurance Board of UNNES, showed that developed question items were in accordance with established requirements. However, there were several sentences on the items that needed revisions to suit the intended purpose. According to material, construction, and language feasibility assessment, the measuring instrument for service satisfaction level is considered proper for use with revisions. Revisions was conducted by research team prior to testing on respondents. The results for questionnaire test by 531 respondents are shown below on Fig.1.
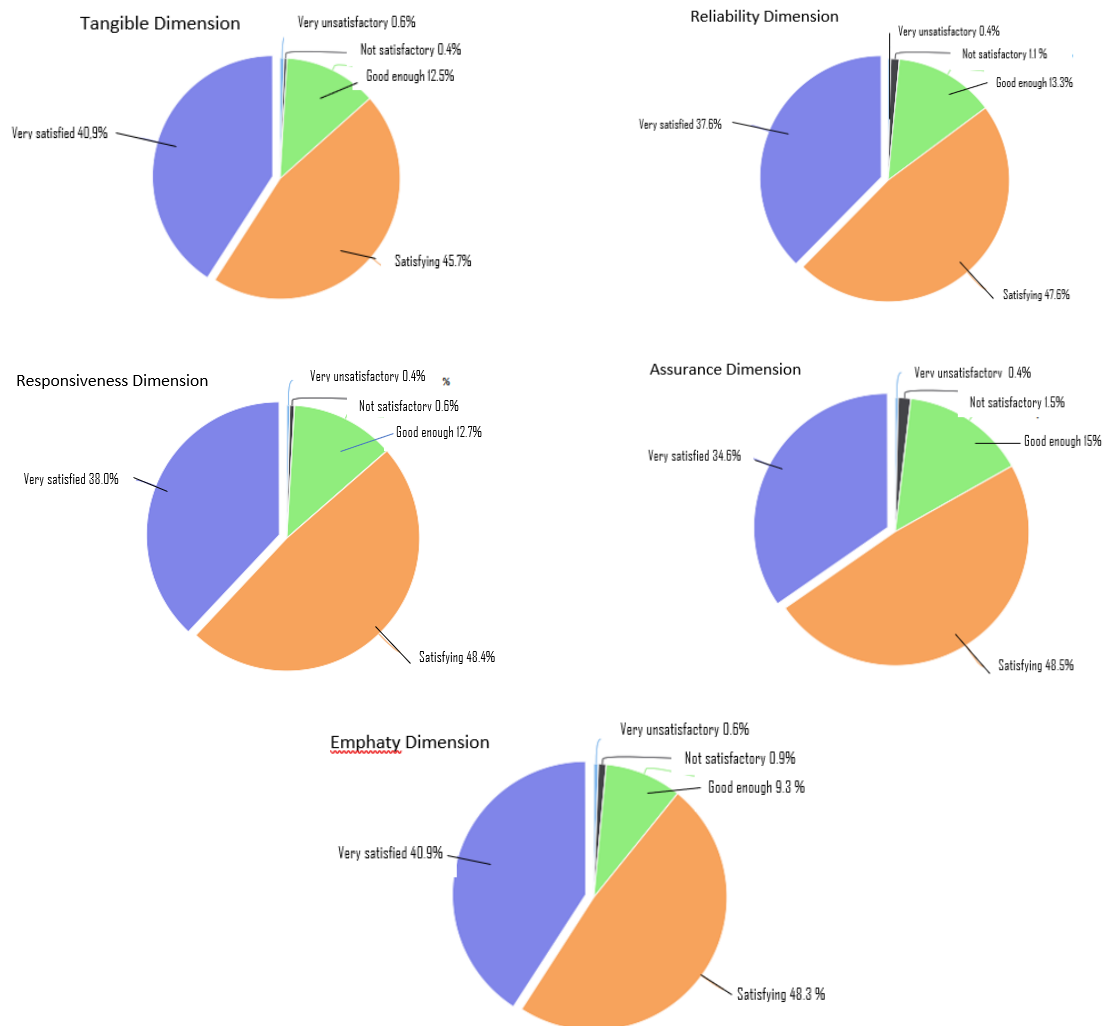

Figure 1. The results of the test questionnaire measuring the level of service satisfaction of administrative staff for 5 dimensions

Construct validitiy and internal reliability test were conducted to follow up the results from respondents answer data. The results from construct validity test using CFA method with LISREL 8.70 software showed that the chi-square score was 773.95 with df = 160 and p= 0.0; Root Mean Square Error Approximation (RMSEA) score= 0.085; Normed Fit Index (NFI) score= 0.99; Non- Normed Fit Index (NNFI) score= 0.99; Comparative Fit Index (CFI) score= 0.99; Goodness of Fit Index (GFI) score =0.87, Adjusted Goodness of Fit Index (AGFI) score=0.83, Parsimony Goodness of Fit Index (PGFI) score=0.66, and chi-s /df = 773.95/160= 4.84 >3. A variable is said to reach good construct validity when goodness of fit and measurement model fit are fulfilled. The score of goodness of fit and measurement model fit that is shown on loading factor can be observed in a path diagram. Path diagram on CFA test is shown below on Fig.2.
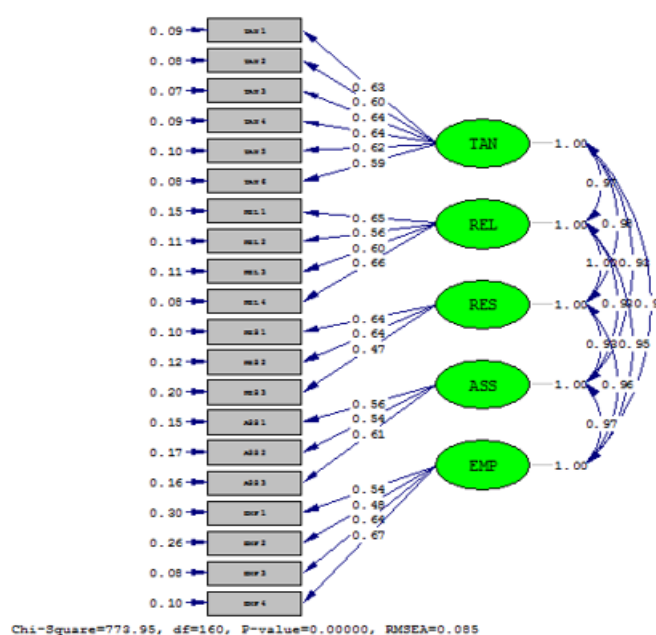

Figure 2. CFA test path diagram

Note:
TAN=tangible;   REL=reliability;
RES=responsiveness; ASS=assurance;
EMP=emphaty

According to reliability test result using Alpha Cronbach coefficient from each dimension, the Alpha Cronbach score for reliability coefficient 0.98. Based on the criteria stated by Naga (2021), the developed instrument in this research had good reliability. The reliability coefficient score obtained in this research is also considered high, indicating that the developed measuring instrument of satisfaction level from service provided by administrative staffs of FMIPA UNNES has good internal consistency.

Based on analysis results, it is agreeable that that the developed measuring instrument of satisfaction level from service provided by administrative staffs of FMIPA UNNES is valid and reliable. Then instrument has been developed according to theoretic study and research from experts, followed by empirical test on representative respondents.

The validity and reliability of the developed measuring instrument is a crucial factor for Quality Assurance Board to obtain valid data that correlates to customer satisfaction level, especially in the service from administrative staffs. Satisfaction index score obtained from this research is a very valuable input to maintain the service quality provided by FMIPA UNNES for its stakeholders.

Quality assurance is seen as a series of related processes and systems to collect, analyze, and report data on performance and quality of academic and administrative staffs, program, and institution. Quality assurance process will identify achievement and improvement priority aspect, provide data as the basic for planning and decision making, and also help building sustainable improvement culture (Haryono *et al*.

2019). By such means, quality assurance needs continuous evaluation, making the necessity of a valid and reliable data collection instrument is strictly important.

CONCLUSION

Based on the results from the research, the instrument development for measuring satisfaction level in service provided by administrative staffs of FMIPA UNNES has construct validity, based on analysis performed by experts and the result of Confirmatory Factor Analysis on several dimensions: (1) *tangible*, (2) *responsiveness*, (3) *reliability*, (4) *assurance*, (5) *emphaty*. The developed instrument also has internal reliability with Alpha Cronbach coefficient score: 0.98

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