Confirmatory Factor of Satisfaction Analysis of Education Service at the Politeknik Negeri Samarinda (POLNES)

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Abstract: *This research seeks a level of confidence in students and sorority who are active in college at the PoliteknikNegeriSamarinda. Aims of the researched to ensure that they are satisfied with the education service delivered by the PoliteknikNegeriSamarinda. The number of students is approximately 5,000 of 23 courses are available. The Sample of this research was 360 respondents who were given the task of choosing statement-level which are; courses development (1), courses information (2), courses services (3), guidance & referral lecturer (4), knowledge benefits (5), studying experience (6), courses coaching (7), and career development (8) as a indicator of satisfaction of education services in the PoliteknikNegeriSamarinda. Confirmatory analysis is done through SEM AMOS. Results showed that the weighted approximate weight of the < 0.60 indicator was a lecture experience, while the other indicators weigh approximately 0.60 in weight to influence the satisfaction of education service. The highest weight indicator that affects the satisfaction of educational services is the study program information of 0,66.*

Keywords: courses, confirmatory, satisfaction, AMOS

1. Introduction

Life's competition has been coloring today's life. Competition is happening both domestically and abroad. Domestic competition is a competition among residents of the country itself manifested in the personal competition of group even. The basis of trust being embraced by us when it can compete in life competitions lies in the quality of human resources. Human resources with high competitiveness.

Educational institutions are believed to be the means of creating human resources. Nowadays, the community's needs for education are increasing, more in advanced technology. Thus the existence of the school as an educational institution certainly felt important by the community. So in choosing their education place is also selective. The public will consider the level of quality of service provided by an institution when choosing education as a place for studying. It is not just a science, but an educational institution can provide satisfactory service so that learners feel there is a future picture of their dreams. Therefore, the current education provider is required to continuously improve the quality of its services to fulfill the needs of consumers.

Wijaya stated that "the success of education services can be realized in the form of providing quality education services to customers, namely students". The development of current satisfaction is not only learners, but all walks of life, especially the industrial community and institutions both public and private[1].

To fulfill community satisfaction, East Kalimantan community. POLNES (State Polytechnic of Samarinda) through the College accreditation body of BAN-PT, where POLNES as the organizer of Vocational education in engineering and Commerce has been accredited B in the year 2018. While accreditation of each field of study, the acquisition of accreditation is quite diverse; A, B and C.

From the result of the institutional accreditation of B, the author wants to know the satisfaction of the education service that has been given to his students.

In a questionnaire of satisfaction education services listed some indicators of satisfaction of education services, among others; the development of courses, information, hospitality, guidance & the lecturer, knowledge benefits, college experience, and career coaching [2].

2. Background of Study

2.1 Satisfaction

According to Srinadi said that the satisfaction of students is a condition of fulfillment of wishes, hopes, and needs of students [3]. As said by Sopiatin that student satisfaction is a positive attitude of students to the Ministry of Higher Education because of the suitability between the expectation of the service compared to the fact he received [4].

2.2 Development of study Program

The word "development" means a process or a way to develop something [5]. The study Program means the unity of educational and learning activities that have specific curriculum and learning methods in one type of academic education, professional education, and/or vocational education[6].

From the definition above the development of the course means the process or way to develop curriculum and learning methods of education and learning activities focused on one type of education, such as vocations.

2.3 Study Program information

In general, information is a collection of data or facts that have been processed and managed in such a way that it becomes something that is understandable and beneficial to its recipients.

According toYogiyantothe understanding of information is the result of data processing into a more beneficial form for its recipients describing real events to be used in decision making[7].

The course is the unity of the study plan as a guideline for the organizing of academic and/or professional education organized on the basis of a curriculum and aimed at students to master the knowledge, skills, and attitudes According to the curriculum objectives[6].

So the study program information can be understood as a collection of facts explaining the purpose of organizing what skills students will reach.

2.4 Study Program Services

In the Economic Dictionary Winardi stated that the service is a form of service delivery provided by the manufacturer both against the user of the manufactured goods and services offered[9].It can be interpreted that POLNES will provide maximum service to his students while undergoing his education.

2.5 lecturer guidance and direction.

Not only as a lecturer but also he gives advice and guides students to minimize the level of absence in following the course. Consequently, the number of drop outs will drop. It also directs students to the interests of the work field after they graduate. Guidance is done in groups if they have the same interests.

In fact, the role of the lecturers ' function is only limited to the consultation and signature of the consultation card, so that the benefits of meeting between lecturers and students are less optimal [10].

According to chapter I, article 1 paragraph 8 education level in Indonesia formal education consists of basic education, secondary education, and higher education [11].

While educational material must be presented fulfilling the values of life and life values include good living values and evil living values. The nature of the life values of the handover are delivered objectively.

2.6 Science benefits

Science is an understanding of human acquired invention or research arranged systematically and can be tested through certain methods, and can be utilized for human life. With the science of one is able to do things that are considered beneficial to himself and others with the implementation (implementation) of knowledge owned [12].

2.7 Lecture Experience

The experience is the result of natural touch with the five human senses. Derived from the word "peng-Alam" that mean know-how. Experience allows one to be known and results known this then called knowledge [13].

2.8 Career

Career is a term defined by the Great Dictionary of the Indonesian language as a development and progress in either life, occupation or job title. Career is usually the job in question is the work that is rewarded in the form of salary and money [14]. In this sense, the student's efforts are better in the future by studying at the POLNES.

2.9 Career Development

For students of POLNES career development are their observations to graduates as they work in both government and private institutions. The observation of the impression is gained through friends or relatives they encounter.

Career development can be interpreted as personnel activities to help employees plan future careers where they work. So that the employees who are concerned and also the company can develop themselves optimally [8].

3. Methodology

This research is included in a quantitative research type with a survey method, which is "research conducted by collecting numeric data and then processed and analyzed to obtain scientific information. While the survey uses a poll or questionnaire as the main data source [15].

In this study the population is the student/I state Polytechnic of Samarinda which is currently active in college. The number of active students in POLNES was 5,000 students. Through a simple random sampling probability method with formula as shown (1) [16].

$$n = \frac{N.Z_{\alpha/2}^2 .P(1-P)}{N.d^2 + N.Z_{\alpha/2}^2 .P(1-P)} \tag{1}$$

From the formula above, the number of active student respondents as many as $357 \approx 360$ people covers the number of students from 23 courses which available in the politekniknegeri Samarinda.

Determination to find the magnitude of each indicator contributes or contributes to the satisfaction level of education services in POLNES by using AMOS application. Indicator as much as 8 as the foundation theory. Assessment indicator is done with linkert scale

4. Results and Discussion

From AMOS to the extent of the student satisfaction of the education services POLNES in the test results model fit Confirmatory need to be done to know the fit model as the result as below;
From Good Of Fit Model
Chi-Square (small expected) = cmim

Probability = 0,000.......... not meet
GFI (> = 0,90) = 0.941........ meet
AGFI (> = 0,90) = 0.894........ not meet
TLI (> = 0.95) = 0.866........ not meet
CFI ((> = 0.95) = 0.904........ meet
RMSEA (< = 0.08) = 0.101........ not meet
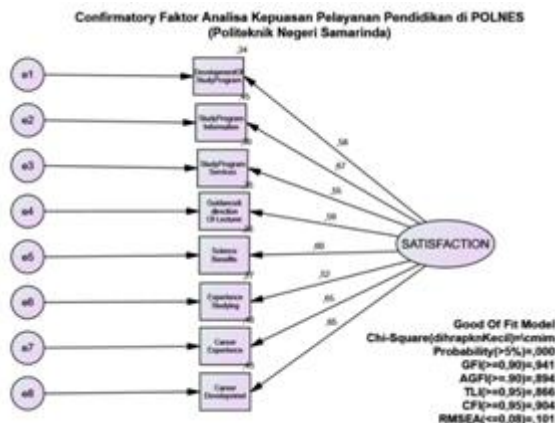The above results are described in the following figure.

Figure 1: Confirmatory Factor of Satisfaction Analysis of Education Service at the PoliteknikNegeriSamarinda(before modification)

Because the model fit above there are several factors that do not meet. Then the above model needs to be done modifications in order to obtain a fulfilling fit model.

4.1.1 Model test conditions after modification
By looking at the output of the covariant, the preparation of the modification image appears as figure 2.

From the figure 2 the previous model had not meet status, changed meet status after modification of the model.

Therefore, a model can be called an "good of fit model". This model is obtained by connecting covariance as suggested in the AMOS output before modification. The model can be seen as figure 2.

The change is seen in the lower right corner of figure 2, where the previous value has changed after the modification of figure 1 as shown below.

Table 1: The value changes before and after modification.

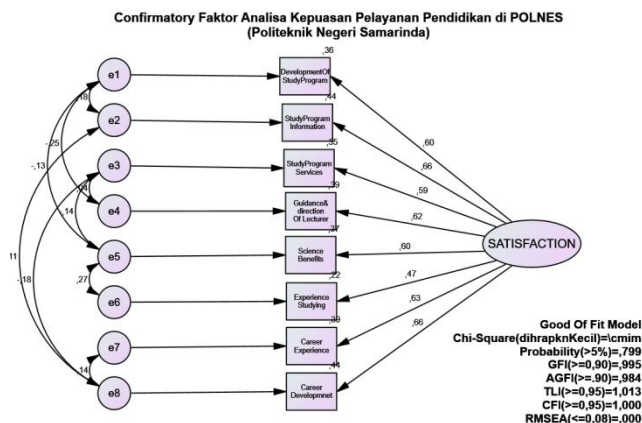|	Terms	before	After
Probability	>0,050	0,000	0,799
GFI	>=0,90	0,941	0,995
AGFI	>=0,90	0,894	0,984
TLI	>=0,95	0,866	1,013
CFI	>=0,95	0,904	1,000
RMSEA	<=0,08	0,101	0,000

Figure 2: Confirmatory Factor Of Satisfaction Analysis Of Education Service at The PoliteknikNegeriSamarinda (after modification).

Test normality
The normality test needs to be done both for the normality of single and multivariate data, where variables are used simultaneously in the final analysis.

Table 2: Assessment of normality (Group number 1)

Variable	min	max	skew	Critical Ratio	kurtosis	Critical ratio
A1	1,000	5,000	-,261	-2,022	-,217	-,841
A2	1,000	5,000	-,405	-3,133	,168	,652
A3	1,000	5,000	-,387	-3,000	-,049	-,191
A4	1,000	5,000	-,452	-3,504	,182	,705
A5	1,000	5,000	-,891	-6,904	,838	3,247
A6	1,000	5,000	-,725	-5,618	1,033	4,000
A7	1,000	5,000	-,541	-4,193	,462	1,788
A8	1,000	5,000	-,664	-5,146	,931	3,606
Multivariate					18,579	13,934

Assumption is said to be normal if the value of critical ratio (CR)-2 < Cr < 2 (Fauziah 2012). To see the value of CR univariate, then the assumption is not normal. Similarly, it happens to multivariate because of 13.934.

4.1.2 Outlier value
Outliers are observations that emerge with extreme values both univariate and multivariate. They look very much different from other observations.

Table 3: Outlier Data details

No.	Observation Number	Mahalanobis Distance Squared	p1	p2
1	264	44,491	,000	,000
2	313	38,428	,000	,000
3	309	37,602	,000	,000
4	147	33,884	,000	,000
5	85	30,721	,000	,000
6	315	30,138	,000	,000
7	219	28,910	,000	,000
8	28	28,568	,000	,000
9	351	26,269	,001	,000
10	248	25,432	,001	,000
11	238	22,702	,004	,000
12	319	22,263	,004	,000

No.	Observation Number	Mahalanobis Distance Squared	p1	p2
13	38	22,065	,005	,000
14	213	20,786	,008	,000
15	68	19,978	,010	,000
16	70	19,456	,013	,000
17	72	18,522	,018	,000
18	71	18,331	,019	,000
19	138	17,693	,024	,001
20	232	17,469	,026	,001
21	11	17,050	,030	,003
22	157	16,609	,034	,008
23	335	16,384	,037	,009
24	57	15,670	,047	,060
25	231	15,581	,049	,051

The table above shows how many outlier data is 25 out of 360 data. They were obtained from the output of the data table of observation farthest from centroid (Mahalanobis distance) (Group number1). The data is outlier. Because data has a value of P1 < ,050. The assumption of SEM mentions that if less than 5%, then the data is outlier [17]. This outlier data affects the data's value.

4.1.3 Result Model after modification
The modification of the criterion resulted in the criteria that were previously in the status does not fulfill, so the model becomes fit.

The model result is the values achieved in the FIT model in the modified condition as the image 4.2. where Chi-square = 7.006; degree free = 11; Probability level (Probability level) =, 799 which means above 5%. So this model is said fit. Similarly, The value of RMSEA (The Root Mean Square Error of Approximation); GFI (Goodness of Fit Index); AGFI (Adjusted Goodness of Fit Index); CMIN/DF; TLI (Tucker Lewis Index); CFI (Comparative Fit Index). All values are fulfilled.

From output figure if covariant table, variant and weight of regression are empty. This means there is no need for modification anymore. As shown from the tables are (2), (3) and (4). Modification Indices (Group number 1 - Default model).

Table 4: Covariance: (Group number 1 - Default model)

M.I.	Par Change

Table 5: Variances: (Group number 1 - Default model)

M.I.	Par Change

Table 6: Regression Weights: (Group number 1 - Default model)

M.I.	Par Change

4.1.4 Validity of the Construct
From output table 7 that all indicators are able to describe the latent variable in the satisfaction of POLNES education services.

P of the table column contains significant factors that are marked with characters *** which means the probability is

under 0.01. This means that all indicators are able to describe the latent variable of satisfaction.Table Significance Loading Factor

Table 7: Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
A8<--- Satisfaction	1,000				
A7<--- Satisfaction	1,003	,096	10,440	***	
A6<--- Satisfaction	,706	,096	7,331	***	
A5<--- Satisfaction	1,004	,118	8,534	***	
A4<--- Satisfaction	,974	,112	8,677	***	
A3<--- Satisfaction	,935	,116	8,051	***	
A2<--- Satisfaction	,997	,109	9,193	***	
A1<--- Satisfaction	,915	,114	8,056	***	

Table 8: Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
A8<--- Satisfaction	,662
A7<--- Satisfaction	,626
A6<--- Satisfaction	,469
A5<--- Satisfaction	,604
A4<--- Satisfaction	,622
A3<--- Satisfaction	,594
A2<--- Satisfaction	,664
A1<--- Satisfaction	,603

The table above shows that the weight influence of each indicator of POLNES education Service satisfaction value is quite diverse. Tilapia weight is divided into 2 (two) parts ≥ 0.600 and under < 0.600. For the approximate weight value above ≥ 0.600 namely A8 (career development), A7 (Bina Careers), A5 (Science benefits), A4 (Guidance & Referral Lecturer), A2 (study program information), and A1 (development course). While the lecture experience in POLNES (A6) has a weighted estimate of the smallest influence on the satisfaction value of education services in POLNES. The greatest weight of influence on the satisfaction value of the education service of POLNES is the study program information (A2).

5. Conclusion

Analysis of the satisfaction of POLNES education services according to the experts can be described with 8 (eight) indicators. After being analyzed through AMOS obtained a model that is not fit. To obtain a fit model. Through modifications (Modification Indices/MI) then compiled model as a picture of 4.2 by generating a fit model. Although a fit model, not so assuming it is built in structural equation modeling or SEM. The Data in this study is abnormal whereby the outlier of data is as much as 25 of 360 data.

Of the 8 indicators of the satisfaction of POLNES education services. There are 6 indicators weighing about 60%. The remaining below is 60%. The information presented by each course is a description of the satisfaction of the highest education services at POLNES.

Advice

Outlier data affect the normality of data. It is recommended that data retrieval be carried out more carefully.

Service indicators and experience of study programs are lower points among the 8 indicators, although all indicators are able to explain the satisfaction of education services.

It has been recommended that the politekniknegeri Samarinda (POLNES) improve eight indicators to improve education services.

6. Acknowledgment

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Author Profile

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