



International Journal of Economic Research

ISSN : 0972-9380

available at <http://www.serialsjournal.com>

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Volume 14 • Number 6 • 2017

The Effect of Learning Facilities, Curriculum Design, and Certification on Student Satisfaction Through Mediating Role of Service Quality (Case Study at STEIN Tourism College)

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Abstract: The Graduates of college give no guarantee to perform in accordance with the work place standards. The main reason is the system, not in line with link and match at work place. The National Qualification Framework (NQF) is regarded as the reference in developing curriculum, learning facilities and recognition by certification. The main objective of this study is to measure the student satisfaction after being trained based on NQF, and at the end with certification. The sample selected out of the alumni of STEIN by Slovin formula at 10% standard error of tolerance. Data is collected by questionnaire. The method by path analysis, using software of WarpPLS3.0. Based on the result of this research, it is known that learning facilities, and certification are positively have effected on student satisfaction, directly, and indirectly mediated by service quality. Hence, the service quality, directly, has effected student satisfaction, strongly.

Keyword: Learning facilities, Curriculum design, Certification, Service quality, Student satisfaction

1. INTRODUCTION

The statistics of Indonesian workforce shows that 50% in low qualification [1]. It is a pity that 40% of them graduated from elementary school only. This is in emergency situation to treat them objectively as many of them are working in high precision works but no recognition yet. For instance, the expert in hand-made batik printing with 20 year of experience is still regarded as low level of qualification, and low pay while their output in high quality and high price. This is the problem in one side, and the equality can be treated by Recognition of Prior Learning (RPL)[2]. On the other side, the high educated from college and university give no guarantee they can perform with the same acceptability and productivity at work place. Due to the curriculum design, practices in campus, on the job training are not based on link and match with work place requirements and standard operating procedures. This is the root of the problem.

To cope with these two different situations, the government has set up the policy to introduce National Education System (NES) in Indonesia [3] and National Qualification Framework (NQF)[4]. The NES regulates the standard to conduct all education system. The NQF is focused on recognition of workforce against their level of competency. It is also gradually expected to accelerate competency based-pay for equal opportunity, and treatment aiming to increase workforce's welfare.

Indonesian NQF consist of nine levels. The qualification for the first level up to the third one is categorized as operator in any kind of industry. The second tier is supervisory level. It is started from fourth up to fifth level, and the sixth level is similar to managerial level. The rest are the professional levels which range from seven up to nine. Graduate general medical doctor is seventh level, the specialist one is eighth level. The ninth level is sub-specialist, but it is not automatically treated to be equal, although the Ministry of Health has acknowledged their capacity and authority to practice their competency in any public hospital, either private or state owned hospital.

The implementation law to the Higher Education is the LawNumber 12 in the year of 2012 On Higher Education[5]. One of the clause has mentioned that the NQF for the Higher Education shall be started from level three up to level number nine. Ever since 2012, the Higher Education is given a grace period inapplying this NQF as a compulsory basis. However, in 2011 up to now, some of the higher education especially vocational one have implemented this NQF, including a non vocational one. STEIN for instance is one of the semi-vocational higher education has applied NQF, ever since 2011 as one of the pioneer. Afterward, the Ministry of Higher Education and Research has issued the Regulation on The Implementation of NQF[6].

There are plenty of barriers to conduct it smoothly. The demand of professional lecturer is the main factor, in addition to time, facilities, and cost of certification scheme process in campus. A campus that willing to initiate the implementation of NQF shall undertake the competency based curriculum, delivery, and assessment. Moduls to facilitate lectures are mandatory. Competency assessors in campus that able to maintain impartiality is also a must.

The Government has prepared the strengths of each campus of higher education by issuing Government Regulationon National Education Standards (NESt.) [7], and its revision Number 12 in 2015 On The Second Change of the NESt. The main element of this standards are human resource, tools, equipments, classrooms, facilities, and management system to conduct the education in theory, practice, and assessment. The human resource for instance are consist iof lecturers and non lecturers to support the implementation of education, training, and assesment. It takes a new model as suggested by Wu and Zheng[8],

In this case study, one of the college, namely Sekolah Tinggi Ekonomi Pariwisata Internasional (STEIN) has implemented the NQF, by incompuorsory basis ever since 2011, as stated above. STEIN is comparatively one of the pioneer college to conduct NQF in Indonesia. The reason to gain this gut, itis because the full support given by National Certification Authority (NCA), the so called, locally, as Badan Nasional Sertifikasi Profesi (BNSP to all tourism colleges to prepare human resource competency prior to ASEAN free market era. This was the factor of eagerness of STEIN in doing this tough works. It is therefore STEIN has gained a lot of prior information, and continued to a cooperation with NCA. The NCA was established in 2005 based on the Government Regulation on NCA[9]. The collaboration between college and BNSP was

legalized by extending a licence to operate as an authorized Professional Certification Body (PCB) at STEIN premise. This is called as the First Party Professional Certification Body (FPPCB).

The main objective of STEIN's management is to project its graduate to achieve the Sixth Level of NQF, as the learning objective [10]. This objective at the same time is aimed to deliver the highest student's satisfaction upon the implementation of NQF. This is in line with learning to be as proposed by Delors [11]. The student were motivated to collect their individual practical experience in campus, and in the premises of hospitality industry. The collection of experiences is in line with process, and people involvement [12]. Based on that experience with at least 25 working days of practices, they are allowed to apply the certification process. The student can take one or some of the competency units from a set of unit as designated in certification scheme. The partial scheme run semesterly to gain the sixth level. All practical experiences are recorded and acknowledged by tutor in campus, or supervisor at work place to put into the assigned log-book. The Certification Scheme itself is also regulated by the NCA through its Regulation Number 201 in the year of 2005, and its revision, Number 4 in the year of 2014 on the same matter [13]. Definition of the sixth level is to have a capability based on skills, knowledges, and attitude to conduct a planning at one unit of organization, to organize, coordinating staffs, evaluating the planned actions, and to find out feedback for the continual improvements, based on standard operating procedures. This definition were the benchmark or stick yard to arrange the scope of the sixth scheme.

On the other hand STEIN has to fulfill the facilities to carry out the scheme and curriculum in line with the National Education Standard. The certain facilities that similar to the ones at work place are mandatory. The student shall familiar with the tools in hospitality industry as they have been used to handle them. The vivid example to point out this matter is the installment and application in campus for **Sabre** or **Abacus** computer reservation system, air tariff, and ticketing that used in airlines business. The same case, the **Videlio** reservation system is similar with the one in hotel reservation system at work place, unless it is upgraded to higher capacity and speed, such as **Opera** system. The Sabre and Videlio reservation systems have been widely used in campus to make student being familiar with.

The previous research

The previous research has been conducted that certification to attain the fifth level in diploma three is possible. The finding is summarized that the fifth level can be achieved provided that curriculum are delivered based on certification scheme, adequate facilities that similar to work place. Hence, the frequency of practical are in place too, and conducted by the competent lecturers for every subjects. The institution is also as an accredited vocational higher education. All the competency subjects, and lesson plan are based on competency based education, training, assessment, and certification by the authorized PCB to proof the level of achievement [14]. This finding is also in line with the implementation of link and match in Germany. It has been explored the benefit of dual system to earn knowledge, skill, and attitude to reach the certain level of NQF in [15]. The quality assurance is the key word and it should be held by the authority in certification process. However, so far there is no study yet for bachelor degree in private or state college to grant the sixth level or the higher except medical doctor program which is acknowledged by the collegium body. Based on this collegium certification, the specialist in any medical doctor can be deployed in any hospital in Indonesia [16]. However, it is not automatically treated, and awarded for the 8th level to this quality education graduates. Having explained the facts, and conditions, this is the main reason to conduct

this study, as to know about the student's satisfaction, after undertaken the competency based training, education, and assesment. This is done to attain feedback for the continual improvement that may recommended to the dean of the college or faculty. Implementation of NQF in United Kingdom (UK), Italy, and Belgium are in place since 2000. The Stakeholders of NQF in UK consist of the related private institutions. It is not belong to the state institution as the authority body. The Higher Education is the implementor of NQF to assure the autonomy to achieve their individual vision, mission, and goals (VMG). The presence of government in quality control is represented by the Quality Assurance Agency (QAA) for Higher Education. QAA is an agency to evaluate, review, and develop NQF in UK [17]. While Italy, and Belgium have impelemented the life long learning, since long time. Both countries applied NQF in vocational for three years with diploma degree, and the four year for bachelor degree. However, the bachelor program in private college shall undertake a state exam that takes a process of one year.

2. LITERATURE REVIEW AND HYPOTHESIS

Learning facilities

The facilities are the pre-requisite prior to subject delivery in campus. One of the facilities is a conditional environment to assure that curriculum is properly delivered. The ergonomic chair, clean and strong table for instance shall be in place at nowadays. Unlike 3 decades ago, that the ordinary chair is not a matter. Based on multi source of learning, the library also shall be provided with adequate, suitable in number, and the quality books, comfortable rooms, and fully supported by Librarian to make sure that student are easy to find what they need.

In accordance with national standard of education [7], learning facilities covering infrasturcture and hardwares. It covers building, class room, laboratories, sport arena, arts facilities and prayer room. Inside class room for instance, the tool to project all material of study in electronic and voice basis are mandatory. LCD, large screen are demanded to be installed inside of every class room. The Students are now feel comfortable to search material to support their presentation on any given assignments. The assignments are being easy to finalise due to time tightness and ease to access data through Wi-Fi that school shall prepare. Due to the positive coorelation between the facilities and the student service quality and student satisfaction, it is now hyphotesized that learning facilities has a positive direct effect on quality of service, and at the end toward student satisfaction.

H_{1a} : The learning facilities has a positive direct effect on quality of service

H_{1b} : The learning facilities has a positive indirect effect on student satisfaction mediated by quality of service

Curriculum

Definition of curriculum may vary as perceived by many authors. It has been has mentioned that curriculum specified by content of unit; structure of the content and program's study; the students' experience of learning, and a dynamic and interactive process of teaching and learning that may provide students to abundant of sources and experiences[18]. In Indonesia, the curriculum for higher education was very tough, too many credits. These credits tend to attain domain of knowledge up to 90%. As the result, the bachelor degree in social sciences cannot perform better than vocational graduate at work place, at the

initial stage prior to training. Training time and cost are very high that owner of hospitality industry are tending to avoid. In demographic advantage like Jakarta city, this situation is favourable to hospitality industry, as many vocational schools and colleges are available. At this present moment, the higher education is allowed to build their own curriculum, to maximumly 60%. This is called as local content.

The Integrated Course Design (ICD) is one of the handbook to design a curriculum [19]. The ICD is the process of work to design a learning experiences in vocational college that cover the objective, learning activities, practical experiences, and assessment. STEIN has designed the ICD bases on competency standards. These competency standards were compiled in certification scheme to enable student to have a link and match qualification. Curriculum is an operational decision to achieve vision, mission, and goals (VMG) as have been set up by an institution, STEIN in this case. All pocedures and processes in place to ensure that the desired quality, however defined and measured, is delivered [19]. The desired quality outcomes were taken at first place. How to achieve the sixth level in STEIN by gradual process of learning program is the domain content of a curriculum. The schedule of learning process in campus, and on the job training to compile the portofolio as the pre-requisite of self assesement by student was predetermined by Vice Dean of STEIN. The quality outcomes that demanding by the end users were converted as the meaningful feedback[15]

The volume of learning was the major handicaps for student to spare their time to catch up the proportion of knowledge, skills, and attitude in their college. The curriculum therefore were set based on competency standards, and competency based assessment. The VMG is a mandatory for higher education to be presented when the accreditation body takes pre-assement and on-site visitation to campus. This witness assessment were conducted by three independent auditors that assigned by the National Accreditation Body (NAB).

The responsible ministries should work together to ensure that the national qualifications framework for Indonesia are clearly articulates the expected learning outcomes. The initiative of NQF were proposed by Ministry of Education, Chamber of Commerce, Ministry of Industry. The main stakeholder by that time is Ministry of Manpower. The reason to this case, was due to demand of investors to have qualified workers to expand their business in Indonesia. This is also the reason, why higher education apply NQF being so late compared with the Government Regulation in 2004 on Certification Authority. So These shall be verified for each level of qualification in terms of what graduates will be awarded that qualified person are expected to understand, and be able to do. This quality objective will be the student expectation that lead to their individual satisfaction. Caution should be exercised in adopting volume of learning or subjects, as mentioned before in the recommendation of OECD/ADB to anticipate the overloading subjects. It is elaborated again to how many credit hour, to avoid barriers to learners and unduly limiting the flexibility of different institutions to guarantee that inter-college entry and exit are giving benefit for student to earn more credits, in line with life long learning as applied in Italy, and Belgium[18]

Colleges are being easy to design programmes to cater for diverse students and varying graduate destinations. It is therefore the hypothesis developed that curriculum has a positive direct effect on quality of service

H_{2a}: The curriculum has a positive direct effect on service quality.

H_{2b}: The curriculum has a positive indirect effect on student satisfaction mediated by service quality

Certification

In accordance with President Regulation Number 8 in the year of 2012 on National Qualification Framework of Indonesia the sixth level is a comparatively suitable for bachelor degree. The sixth level description comprised of the competency in skill, knowledge, and attitude to perform an yearly planning in line with strategic plan of a company, to organize staff, and to realize the planning. In doing so, the coordination, training, solving problem in work place, and motivating staffs are the domain competency that should be pursued. The sixth level should also competent in theoretical background in his main objective of the study to enable his/her to formulate the possible solution and decision making.

The formulation of some alternative based *cost and benefit* analysis is the learning objective of this level. The employability of team building and to lead a team as the scope of the responsibility. The certification scheme is mandatory to plan when and how to achieve this high level of qualification. Therefore, the scheme of certification shall contained the distribution of process to conduct level 3, 4, 5, until the sixth one. The practices in campus is not enough as the basis to apply certification for managerial level.

Kartajaya[20] says that at nowadays, it is not enough to do the process only, but including collaboration. In manufacturing business, the process is everything to guarantee the quality, nothing wrong with it, but just not enough. The process and collaboration are the simple and fit enough to implement NQF in campus of higher education. The collaboration with PCB, hotels, restaurants, and other tourism industry are the key to be able to have the chances to earn experiences. The experiences in line with certification as designed to achieve the certain level, this is also as people involvement in stages of process[12]. The competencies earned through theory and practice in campus, added by skill performances at work place are recorded and acknowledged in a-log-book. These records are the basis for certification process at FPPCB. It is again that collaboration with FPPCB is the proof of its importance. At PCB all process of certification are conducted in line with NCA guidelines and policies [13]. The planning, process, collaboration are expected to earn student satisfaction in accordance with their expectation[20].

The importance of qualification

The education system in Indonesia is similar with *a leaking pipeline* [18]. The main reason to underline this strong statement of finding is based on drop-out ratio from Elementary to Middle High School, and from Middle High School to High School. The cause of this drop out was based on the poor services and facilities in middle high school. It is more than 75% schools are in a poor state of facilities and services that not match with the National Education Standard (NEStd).

The final step is to provide quality assurance that the output shall be acceptable in the market. Encouraging higher education institutions's stakeholders. The college, universities, and polytechnics are pushed to diversify their learning objectives, curriculum design, student admission and designing significant learning experiences [19]. This triad of learning goals, teaching and learning activities as competency based education (CBE), and feedback/assessment as the competency based assessment (CBA). Learning goals identify what we want students to learn. This is a contract between college management and student. Having to know their duties, the next step is learning activities identify how students will learn. The most important that student should understand what are the benefits for them, so that they are able to proceed a comprehensive improving feedback to college management. Fink emphasizes that next step is to make

sure that the learning environment shall conform to the VMG[19], and so do Yurimoglu[12] in the importance of physical evidence.

Graduate profile that identify the expected graduate outcomes of a qualification. This is still in debate as to allow the certificate of competence as the supporting document to diploma. There may arise since no guarantee that the graduate one can be acceptable in work place, by giving such a paper, since it is not more than the existing diploma. While competency certificate has been tested in knowledge by oral or written test, plus observation as the witness to proof somebody is able to conduct tasks that similar at work place. As assessor never satisfied by portofolio only. The things on any application submitted by assessee is only a pre-requisite prior to real assessment. Is it possible to design an occupational outcome?. This is the question by stakeholders that college has to deliver the answer. The planning shall be started from the scheme of certification. The ASEAN agreement on this matter has set up a series of schemes for tourism, based on occupational[21]. The schemes have comprehensively describe what a person able to collectively do, be and know. However, the student shall be well informed at the beginning of the process on the benefit of the attained certificate in campus, or during their study in campus, as well as during their individual practice at the work place. The triad learning and assesement design by Fink, is quoted at Fig. 2 hereinunder. It is therefore, in this research hyphotesized that certification has a positive effect on quality of service, and student satisfaction mediated by service quality.

H_{3a}: The Certification has a positive direct effect on quality of service

H_{3b}: The Certification has a positive indirect effect on student satisfaction mediated by quality of service

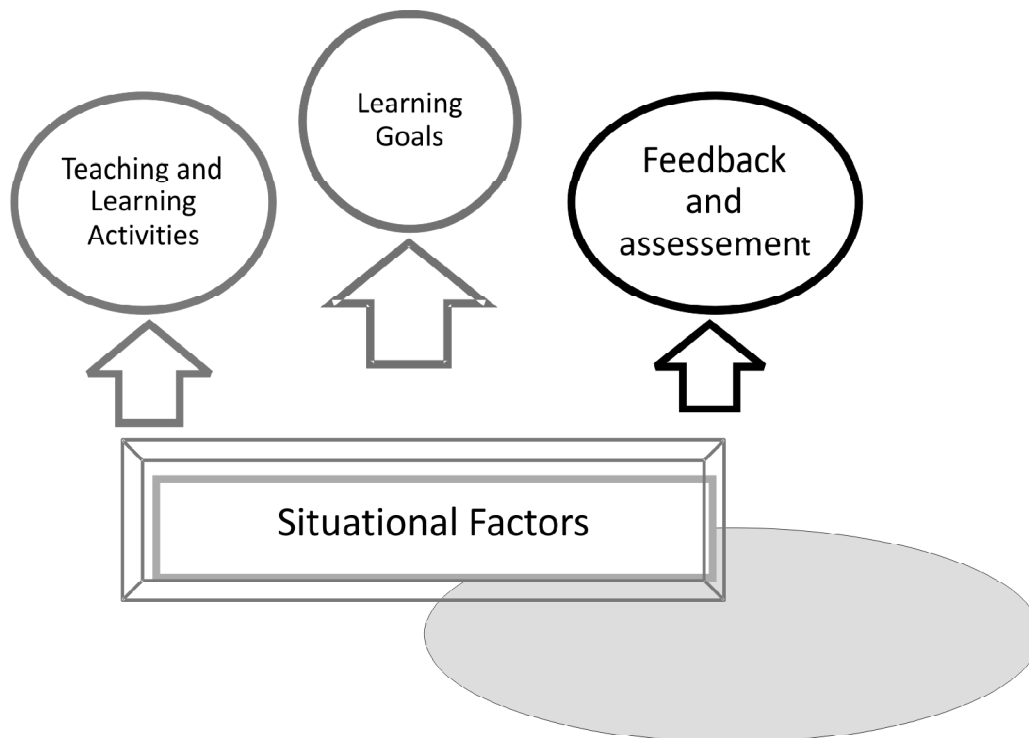


Figure 1: Model of Integrated Course Design, by Fink (2003)

Service quality

Service Quality is a method to measure the quality of planning and delivery of all subjects. It is a dynamic process that affect the quality of student[22]. When the expectation is met, the quality is in line with the planned promise to be given[23]. The student can promote STEIN after graduated by mouth to mouth their junior class in the previous high school. Otherwise, the sustainabilityfor the long run of STEIN is not guaranted[19]; [24].

The recognition is also gained from the other stakeholder, that is the end user. The end users are invited to campus to execute the regular recruitment every sixt month. The satisfaction of this end-user met when they took some potential list to be invited, or as their individual list of recruitment. It is not easy to compare the quality of people. It is not as easy to check the tangible product that can be tested by its manual compared to its specifications[25]. This is also valid for education service that not easy to deliver student satisfaction, it takes a model that fit to a particular college[23].

The service quality given by the company, the college in this case is fullflled when the needs and wants of the students as customers, and on the other hand, the end users[24]. Henceforth, the research done by Kuruuzum & Koksal [26] has found that the satisfied customer in hospitality industry will be loyal and willing to pay more expensive. Service quality is refer to individual outcome transactions. It is relative inferiority and superiority of the organization and its services. The responsiveness is also a matter on service quality[27]. This is concluded and hyphotesized that service quality has a positive effect on student satisfaction.

H_{4a} : The service quality has a positive direct effect on student satisfaction

In the meantime quality is a dynamic condition that affecting product, service, man, process, and environment that comply and fulfill the expectation of customer. Service quality is a measure of how well the service level delivered match with customer expectations. Delivering quality service means conforming to customer expectations on a consistent basis[22]. It should be observed periodically.

In this research, it is proposed that student satisfaction are positively affected by learning facilities, curriculum design, and certification, that mediated by service quality.

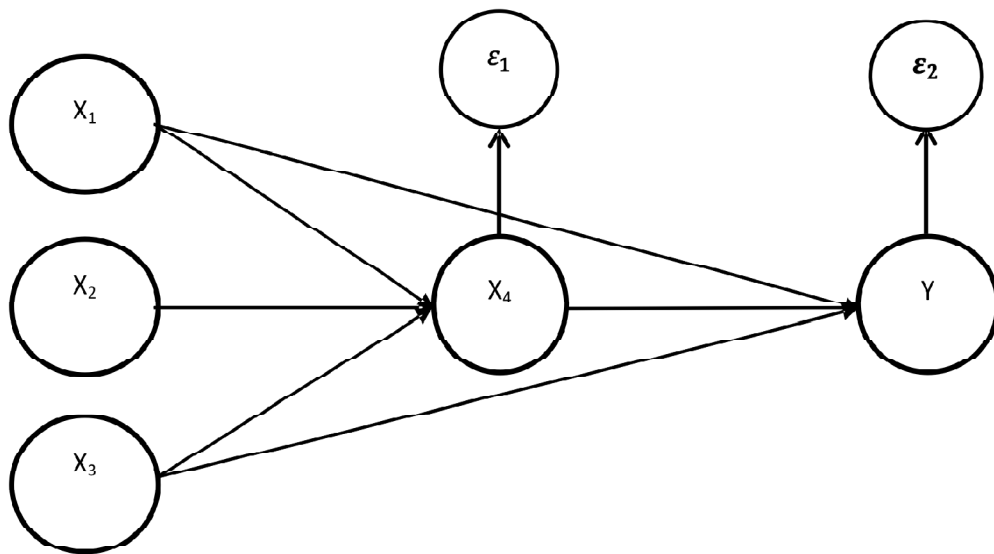


Figure 2: Conceptual Framework

X_1 : Learning Facilities

X_2 : Curriculum Design

X_3 : Certification

X_4 : Service Quality

Y : Student Satisfaction;

ε_1 : Error in sub – structural 1

ε_2 : Error in sub – structural II

3. RESEARCH METHOD

(A) Sample Selection

The alumni of STEIN from 2010 up to 2015, totally 666 person as the population, where N is 666. Out of this population using Slovin formula the sample needed with minimum 87, by 10% error of tolerance. The applied available sample are 93 respondents. The validity and reliability was conducted based on 20 alumni that was not included as the assigned samples. To collect primary descriptive data, the questionnaire was deployed. It is reliable as the Cronbach's alpha $> 0,60$ [26]. Simple Random Sampling technique was applied without stratified population [28]. To measure the alumni's free judgement, the Likert Scale is applied as shown herein-under. All alumni had the equal opportunity to participate as questionnaire was widely distributed.

Likert Scale

The score of Likert as shown below:

Table I
Likert Scale

<i>Alternative of independent answer</i>	<i>Score</i>
Most Agree	5
Agree	4
Netral	3
Not Agree	2
Most Not Agree	1

(B) Data Analysis Method

The transformation of ordinal data into interval data was done to fulfill a part of parametric analysis requirement [29]. The path analysis method was applied. This also suggested by Riduwanand Kuncoro to be able to know the direct effect of a set of independent variable against endogen variable. Hence the assumption test consist of normality test by Kolmogorov-Smirnov. While multicollinearity using the value of average variance inflation factor (AVIF) that less than 5. The linearity test is also applied to know the relationship among the variable is in linear or not. The last one is to apply Mahalanobis distance test to

make sure and to measure whether any data is outlier or not [30]. The process to analysis data by using software of WarpPLS 3.0 program, to find out the relation coefficient between the observed variable based on the following Table II.

Table II
The Relation Between The Observed Variables

<i>Path Coefficient</i>	<i>Effect</i>
0.05 - 0.09	Weak
0.10 - 0.29	Moderate
> 0.30	Strong

Source: Sarwono, 2007 [32].

The following model of sub-structural I and sub-structural II constructed based on Figure 1.

$$\text{Sub-structural I : } X_4 = \rho_{X_4 X_1} X_1 + \rho_{X_4 X_2} X_2 + \rho_{X_4 X_3} X_3 + \rho_{X_4} \epsilon_1 \tag{1}$$

$$\text{Sub-structural II : } Y = \rho_{Y X_1} X_1 + \rho_{Y X_3} X_3 + \rho_{Y X_4} X_4 + \rho_Y \epsilon_2 \tag{2}$$

The residual coefficient is attained by the following formula:

$$\epsilon = \sqrt{1 - R^2} \tag{3}$$

In case any exogen variable with insignificant coefficient of its path, attained from the equation number (1), or number (2), the said variable will be omitted out of the model. The next step is to apply trimming model as suggested by Riduwan and Kuncoro [29].

4. RESULTS AND DISCUSSION

The chosen algorithm analysis is Robust path analysis for this software of WarpPLS 3.0. The latent variable of score factor by average of all indicators [31], due to the limited data available. The resampling method is done by jackknifing it. The classic assumption result as shown on the table below :

Table III
Assumption Classic Test

<i>Test of:</i>	<i>Result:</i>
Normality	Kolmogorov-Smirnov Z = 0.949 Asymp. Sig. (2-tailed) = 0.328
Multikolinearity	Model fit indices and p value APC = 0.303, P < 0.001 ARS = 0.634, P < 0.001 AVIF = 1.800, Good if < 5
Linearity	$X_1 \rightarrow X_4 = \text{Linear}$ $X_2 \rightarrow X_4 = \text{Linear}$ $X_3 \rightarrow X_4 = \text{Linear}$ $X_4 \rightarrow Y = \text{Linear}$ $X_1 \rightarrow Y = \text{Linear}$ $X_3 \rightarrow Y = \text{Linear}$

On the above table, it can be seen that normality test has produced that the value in normal distribution as the result of 0.949 is higher than 0.05. The Output Model fit indices and p value shows that criteria of goodness of fit model has been fulfilled. The P value for Average Path Coefficient (APC) and Average R-Squared (ARS) is less than 0.001, and it means less than 0.05. The value of Average Variance Inflation Factor (AVIF), 1800 is higher than 5. It means that there is no multicollinearity among all the exogenous variables.

On the linearity columns, all exogenous variables are labelled with 'linear' against the service quality. It shown also, that all exogenous variables including mediating variable are labelled with 'linear' against student satisfaction. It means that all variables have the linear correlation with student satisfaction.

In the Mahalanobis Distance test, the studentized value should be less than 3. The result shows that one data has a studentized value, because it is more than 3, located at the 60th data. So it is therefore the observed data being reduced from 93 to 92 only. Having all assumptions have been fulfilled, the following are summary of result as shown on the Table 4, below:

Based on the above results the model of path analysis is shown hereinunder.

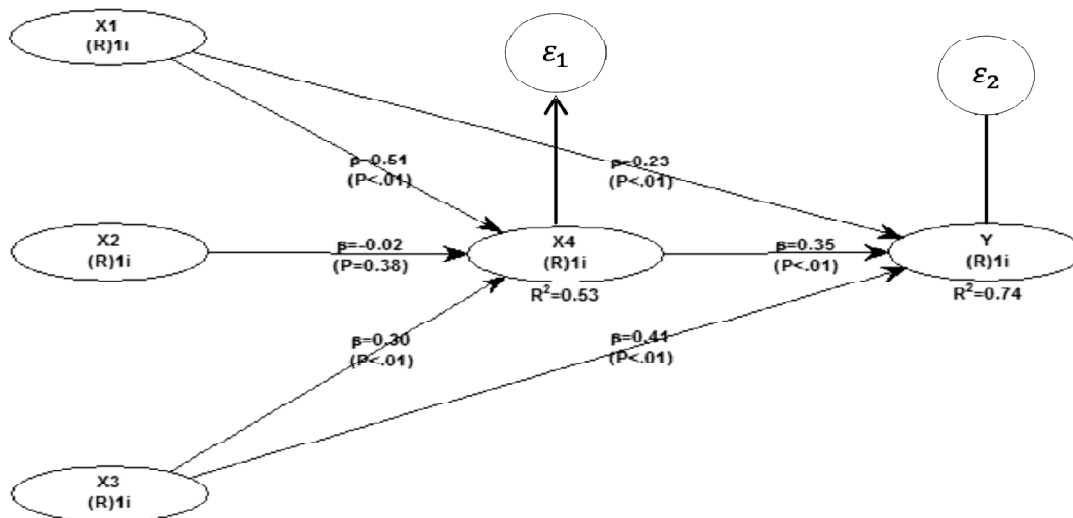


Figure 3: Path Analysis Coefficient Before Trimming Path

The above results presented in table below:

Table IV
The Summary Result of Hypotheses Test

The Inter-variables effect	Pengaruh Kausal Path						
	Direct	Indirect	Total	Category	P-Value Total	R ²	Conclusio
H _{1a} = X ₁ → X ₄	0.508		0.508	Strong	<0.001	0.526	accepted
H _{2a} = X ₂ → X ₄	-0.023		-0.023	-	0.377		rejected

contd. table IV

<i>The Inter-variables effect</i>	<i>Pengaruh Kausal Path</i>						
	<i>Direct</i>	<i>Indirect</i>	<i>Total</i>	<i>Category</i>	<i>P-Value Total</i>	<i>R²</i>	<i>Conclusio</i>
$H_{3a} = X_3 \rightarrow X_4$	0.300		0.300	Strong	<0.001		accepted
$H_{1b} = X_1 \rightarrow Y$	0.227	0.178	0.405	Strong	<0.001	0.742	accepted
$H_{2b} = X_2 \rightarrow Y$	-	-0.008	-0.008	-	0.377		rejected
$H_{3b} = X_3 \rightarrow Y$	0.409	0.105	0.514	Strong	<0.001		accepted
$H_4 = X_4 \rightarrow Y$	0.351		0.351	Strong	<0.001		accepted

The summary of the model of this research by sub-structural path analysis are structured as follows:

$$\text{Sub-structural I : } X_4 = 0.508 X_1 - 0.023 X_2 + 0.300 X_3 + 0.689$$

$$\text{Sub-structural II : } Y = 0.227 XY_1 + 0.409 XY_3 + 0.351 XY_4 + 0.508$$

Based on the analysis using WarpPLS 3.0, it is concluded that learning facilities has positively effected the quality of service, directly. The P Value of $0.000 < 0.05$ and the path coefficient is 0.508. This finding has contributed and complimentary to the Ministry Regulation Number 73 in 2013 on the implementation of NQF. It is also in line with the finding by Fink [19], that learning facilities as the situational to support the achievement of learning goal itself.

In the meantime the curriculum has negatively effected against the quality of service where the P-Value of $0.377 > 0.05$, and its path coefficient -0.023. In this case, there is a contradiction to both finding of Pink, and the implementation requirement of NQF. The NEST has set up the curriculum as one of the main prerequisite to conduct the quality education. Even Fraser and Bosanquet has mentioned that curriculum is a dynamic process to structure the content of learning[31]. It is perhaps good to observe the sub-variables of the curriculum to explore more detail, and give better perception and understanding of the respondents, in the later research.

On the other hand, the Certification variable has positively effected the quality of service, directly. It is proven by the P Value of $0.000 < 0.05$, and the coefficient of path value is 0.300. The collaboration with PCB and NCA haveled this certification process and recognition as stated by Kartajaya[20]. Hence the OECD/ADB (18) has mentioned that education system in Indonesia in a state of leaking pipeline. However with certification in college, the student is able to entry a particular job as student has a proof his/her competency by showing a certificate of competency, eventhough the student was not graduated yet. This certification is applicable prior and after graduation as stipulated in Government Regulation on National Training and Assessment System). [33].

However, the result as shown in Table 4, can also explain that the learning facilities, curriculum design, and certification have positively effected against service quality, simultaneously by 53%. The result is in line with the previous conceptual framework that these three variables are strongly needed to deliver the quality service in college of STEIN, even on the other colleges. It has been also recommended in the study that conducted by Silitonga[34], in a vocational diploma three in tourism. The residual value of 43% is effected by other variables that not included in this research.

The learning facilities has positively effected against student satisfaction, diretly, as well as indirectly, through mediating variabale of service quality. The coefficient of 0. 227 and 0. 178, totally 0. 405, both have effected against the student satisfaction. This result indicating that a quality service is not possible without the availability of learning facilities. This requirement is set by government as the second NEST[7].

It is contradictionally with curriculum design that it has no direct effect on service quality, neither the effect of indirect one through mediating variable of service quality against student satisfaction. This result can be interpreted as the value of path coefficient with -0. is insignificant. Again this result shall be further to be observed by using some sub-variable with different method of analysis.

The certification variable has positively effected the student satisfaction directly. This effect is also applicable for direct, and indirect one through mediating variable of service quality. The following path coefficient, respectively are 0. 409 plus 0. 105, so both, totally resulting the amount of 0. 514. This effect in accordance with Sarwono [32], is strong enough, as it is more than 0. 30.

The last one, service quality variable has positively effected the student satisfaction, directly. The P-value of $0.000 < 0.05$ and the path coefficient is 0. 351. Additionally, this variable is also acts as mediating variables between learning facilities against the student satisfaction. At the same time service qulity is also acts as mediating variable between certification against student satisfaction.

The final finding that learning facilities, certification, and service quality have positively effected, simultaneously by causal relationship. The student satisfaction in this case simultaneouseffect is 74%. The relation between all independent variables against dependent variable of student satisfaction is very strong. It is much more than required of 0. 30. This result shows that the residual of 26% are positively effected by other variables that not included in this research.

Since one of the variable has no effect on the student satisfaction, the trimming model is applied. This is done to improve the structure of path analysis model by reducing or removing the insignificant variable. Hence, the path analysis is shown hereunder.

The above results of new model path analysis is presented in table below:

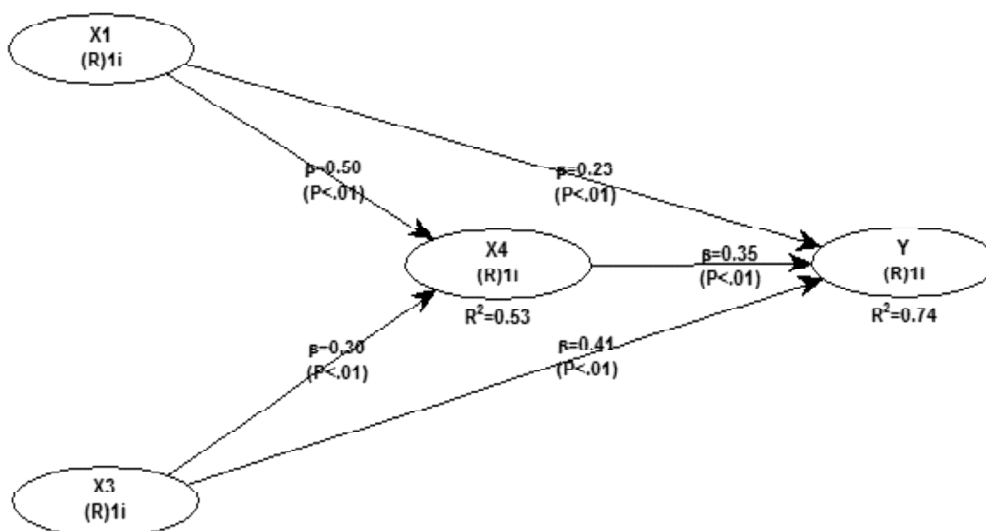


Figure 4: Model of Path AnalysisAfter Trimming

Table V
The Trimming Model Upon Summary of Hypotheses Tests After Trimming

<i>The Inter-variables effect</i>	<i>Influence of Causal Path</i>						
	<i>Direct</i>	<i>Category</i>	<i>Indirect</i>	<i>Category</i>	<i>Total</i>	<i>R²</i>	<i>Conclusion</i>
$H_{1a} = X_1 \rightarrow X_4$	0.508	Strong			0.503	0.526	accepted
$H_{3a} = X_3 \rightarrow X_4$	0.295	Moderate			0.295		accepted
$H_{1b} = X_1 \rightarrow Y$	0.227	Moderate	0.176	Moderate	0.403	0.742	accepted
$H_{3b} = X_3 \rightarrow Y$	0.409	Strong	0.104	Moderate	0.512		accepted
$H_4 = X_4 \rightarrow Y$	0.351	Strong			0.351		accepted

Having done a trimming against models, the new equation model of sub-structural path analysis are being reformulated as follows:

$$\text{Sub-structural I : } X_4 = 0.503 X_1 + 0.295 X_3 + 0.689 \varepsilon_1$$

$$\text{Sub-structural III : } Y = 0.227 X_1 + 0.409 X_3 + 0.351 X_4 + 0.508 \varepsilon_1$$

In line with the above trimming test's result, it is concluded that the learning facilities has the direct effect on service quality. The amount of result of 50.3% or 0.503 is strong enough compared with 0.30 as outlined by Sarwono[30]. The OECD/ADB has also found that the weaknesses of education system and delivery in Indonesia are located at this area[18]. The ratio of student and class room. The ratio of practical or laboratorium against the total of student. The frequency of practical ratio as demanded by competency based education too, in order to achieve the level of precision, and accuracy[35]. is accepted where the learning facilities has a positive effect on service quality.

The certification has a direct effect on service quality with 0.295 or 29.5%. This value shows that the effect is categorized as moderate one. This value is understood for the time being, due to the lack of promotion of certification among the high schools. Due to this situation the government should see deeper what other possible cause to effect this situation.

It is shown in Tabel V that certification has a direct positive effect on service quality at the value of 0.295, similar with 29.5%. This value is categorized as moderate one [32]. A meaningful feedback to management of STEIN is necessary to be recommended. How is the stage of implementation done, as in UK and Belgium, it was conducted by gradual stages[15], and Germany with sandwich program that allow student to have more time on job site[12]. In particular Silitonga[14] has recommended that all stakeholders shall be in bonafide tutor, facilities, time, process, on the job training, and certification. is accepted where the certification has a positive effect on service quality.

The learning facilities, after trimming, has a direct and indirect effect respectively on service quality, and student satisfaction. However the value of 0.227 equal with 22.7% as a direct effect on service quality with moderate one. The value of 0.176 or 17.6% as an indirect effect on student satisfaction, through mediating variable of service quality is also in moderate category. This is also shall be underlined as the focus of management to audit all facilities in line with student expectation [24], [25]. The NES has prioritized the learning facilities in expectation that student may have better chance, better environment, better

infrastructure to gain more source of learning in class room, as well as out of the class room[5], [6], [14]. It has been answered that is accepted in moderate category.

The certification has a positive direct effect on service quality with strong value of 0.409 or 40.9%. The value prior to trimming and post trimming is the same with strong category. This certification is surprisingly effected student satisfaction that similar with the previous research. This treatment is relatively new in higher non-vocational education. However the rest portion of 59.1% are still affected by other factors that need to be explored by the management of STEIN in seeking the excellence. In the meantime, is accepted in strong category.

Additionally, certification has indirectly effected student satisfaction by mediating variable of service quality. The value of this effect is 0.104 or 10.4%. This is also can be interpreted the urgency of certification, and the requirement to implement it non-vocational higher education. The effect of 10.4% is categorized as a moderate one, and the residual are valuable to be explored and fulfilled by STEIN, the area can be in lecturer, practices, learning media that in line with the previous research[8], [35]. The next hypothesis where has a positive effect on service quality, directly, and student satisfaction, indirectly is accepted.

The last hypothesis is then tested, and according to the research result as stated on the Table V, the value of service quality against student satisfaction directly is 0.351. This value is above 0.30 meaning that it reach the strong effect on student satisfaction. This is also need to be observed and upgrade the level of service quality as there is a very significant percentage of 64.9% are still influenced by other factors. It is necessary to find out and refer to what are the lackness in fulfilling the requirement of NEST, and what OECD/ADB and Fink have pointed out [18], [19]. Moreover, the service quality has a causal relationship between learning facilities, and certification against student satisfaction. Consequently, the hypothesis accepted, where service quality has a significant effect in strong category on student satisfaction. Unfortunately, the open question on individual present title of occupation were not declared. This is the proof that level of competency is not automatically accepted to acquire a title of occupation, especially in managerial level. However, by random interview, some of the alumni have reached the supervisor and managerial level of occupation.

The value of R^2 of 0.536 is significant and has a strong influence on student satisfaction by learning facilities, and certification with a quality of service that enable student to compile their competencies by semesters, the trust was built. This is the way to assess customer satisfaction[25], . The compilation were done by certification gradually until they earn the Sixth level of qualification scheme. The value of R^2 of 0.742 is significant and has a strong influence on student satisfaction by a quality of service that enable student to compile their competencies, semesterly. The compilation were done by certification gradually until the earn the qualification scheme. This is the solution to avoid mismatch between college delivery, and certification scheme and work place standards.

5. CONCLUSIONS AND RECOMMENDATIONS

The inclusion of certification against student satisfaction in this research is comparatively a new. The Government decision to implement NQF in higher education is a positive stern of measure that can be fruitful to upgrade the qualification of the workforce. At this point of implementation, STEIN has been successfully in line with government regulation and Indonesian law to answer the missing pipeline as stated

by the result of OECD/ADB research in 2015.

It is concluded that learning facilities, and certification based on NQF are directly have positively effected the student satisfaction, and indirectly mediated by service quality in strong influence. Other variables have also may affected student satisfaction, on either directly or indirectly that could be observed in the latter research. The effects may be suggested to the management of STEIN to be upgraded to gain the better influences, and better outcomes in the form of alumni's word of mouth for the sustainability of STEIN itself.

The study has the following limitations and recommendations. Firstly, the limited sample available that may lead to lack of representation of the whole population. Secondly, the single object at STEIN as the only place of population that may not represented the whole result of implemmentation of NQF in other participant colleges, and the next research is necessary to be done.

However the recommendations can be submitted to the management of STEIN that learning facilities, certification, and service quality are the area of importance to meet student higher satisfaction. In the meantime, it is also suggested that the curriculum design is not necessary be included, in the next research, provided that all requirements of NQF's scheme to implement are in place.

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