

Quality Improvement of Higher Education Viewed From Management, Quality Audit, and Training

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Abstract-- The purpose of this study is to identify the determinant variables of Higher Education quality: Higher Education management, the role of internal quality auditors, and education and training. This research was conducted based on the perception of stakeholders from 5 private Universities (4 Universities in West Java and 1 University in Papua, Indonesia). The ordinal scale used in this study is a Likert Scale, which consists of 20 items, which are proven valid (validity scores .225 to .792) with a reliability index of Cronbach Alpha = .830. Data were analyzed by multiple linear regressions using the Stepwise Model SPSS program of version 25. The results of this study indicate that the average of almost all variables is between moderate and high. This research succeeded in finding 2 determinant models of Higher Education quality improvement. Higher Education management cycle should focus on internal quality auditors, starting from planning, budgeting, organizing and controlling.

Keywords-- Quality of higher education: Management of Higher Education, the Role of Internal Quality Auditors, Training.

I INTRODUCTION

The quality of higher education in Indonesia is not yet in an ideal condition, it can be seen from the number of higher education institutions that achieve an A (ideal) accreditation score of only 12% [1]. The quality of higher education is the result of an ongoing process; there are many indicators that can be used to assess the quality of higher education [2], [3], [4], [5], [31]. The findings of Panday [6] show that in the implementation of improving the quality of higher education, there are some shortcomings, namely the standard process, infrastructure standards, assessment standards, research standards, community service standards and cooperation standards. Based on these results, the quality improvement strategies that can be carried out are: establishing a system of assessment and development of systems and quality of learning, increasing the availability of educational facilities and infrastructure including the creation of e-libraries, improving and improving the system of evaluating learning outcomes within the domains of established competencies of graduates, motivating lecturers in conducting research and community service by increasing the ability of their research, increasing various collaborations to advance the quality of higher education, its outputs and outcomes [32]. If you understand further that the university manager must have difficulty in determining the strategy by choosing from the five suggestions submitted.

Quality management in educational institutions can be done by managing all educational resources so that they carry out their main duties and functions with full responsibility, so that they are able to produce quality services in accordance with the expectations and needs of users. In implementing Total Quality Management (TQM) in

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educational institutions, there are five things that must be considered; namely the focus on customers both internal and external, total involvement, the existence of quality standards, commitment and continuous quality improvement [7].

Given the limited resources, funds and time available, in an effort to improve the quality of Higher Education, the right strategy must be chosen among the various alternatives offered; the principle of efficiency and effectiveness in determining each of the main and first choices / strategies becomes a priority point [8].

The purpose of this study is to identify the determinant variables of quality of higher education; especially variables that can be treated by universities. Specifically the variables that have not been explicitly revealed in the research including the above research are: Higher Education management, the role of internal quality auditors, and education and training.

II LITERATURE REVIEW

1) Management of Higher Education

Hersey et al. [9], defines management as the process of working with and through individuals and groups and other resources such as equipment, capital and technology to achieve organizational goals. Geneen and Moscow [10], see management as a life force that gets something done with acceptable high standards. According to Peretomode [11], management is the guideline, leadership and control of people's efforts towards several common goals. Management is a process, coordinated sequence of events; this is a social process and socio-economic interaction that involves a coordinated event sequence - planning, organizing, coordinating and controlling or leading - using available resources to achieve the desired results in the fastest and most efficient way. Management is seen as a process carried out by one or more individuals (managers) coordinating the activities of others to achieve results that cannot be achieved by one individual acting alone [11]. The manager, according to Drucker [12], is the person responsible for the performance of all those who depend on their own performance.

Based on management developments over the past five decades, which can be explained in a number of different ways, at the core of all such descriptions, according to Kotter [13], we always find four or five main processes, which include:

- (1) Planning: Planning is the science of logical deduction ways to achieve a given goal. Various techniques have been developed to help this process.
- (2) Budgeting: This is part of the planning process related to organizational finance.
- (3) Organizing: This means that creating a formal structure that can be achieved by planning, locating staff with qualified people, defining clearly what each role is, giving them appropriate financial and career incentives, and delegating appropriate authority to those people
- (4) Control: Control involves constantly looking for deviations from the plan (problem), and then using formal authority to solve it.

2) Improving the Quality of Higher Education

Conceptually, the quality of higher education can be determined by evaluating the level of satisfaction of their stakeholders [14]. Associated with these stakeholders, Asiyai [15], believes that improving the quality of higher education that is sustainable and holistic requires a collaborative effort from various stakeholders both internal and external. Collaboration will help trigger improvements. Such collaboration can be achieved by establishing a cooperative relationship with employers, labor and other external stakeholders such as other educational institutions, non-governmental organizations, and the private sector. Therefore, the quality of Higher Education can only be achieved through the distribution of costs among stakeholders such as government, universities and the public / private sector. In improving quality, Higher Education can also collaborate with companies / industries by utilizing their technology and expertise to influence improvement through staff training. Higher Education can ensure continuous improvement in quality by ensuring continuous training and retraining for lecturers and other staff through high-quality professional development programs. In this way, excellence (quality of Higher Education) with high standards can be achieved [15]. Achievement of quality of Higher Education cannot be separated from the role of internal quality audit [16].

3) Internal Quality Audit

Internal Quality Audit is a systematic, objective, documented and independent examination and evaluation to determine whether the quality management system activities and related results are in accordance with planned arrangements; whether this arrangement is carried out effectively and in accordance with the commitments, policies, objectives and quality objectives that have been planned or determined to achieve the goals [17].

An objective perspective of an auditor can strengthen a system in a weak area and provide additional benefits to the organization [18]. After sufficient time has passed, the activity must be examined by an independent person, who works on behalf of the organization; this is known as a Quality Audit Internal. The auditor will ensure that activities are being carried out as described in the documented system, and are sufficient to meet the requirements of ISO 9000. Where problems are found, the documented system or the activity itself must be changed / corrected. From this point onwards, the audit cycle, review, determine changes and then re-audit followed by the review, etc. is a never-ending cycle, which must lead to continuous gradual improvement. Higher Education must have procedures to describe how audits are planned, conducted and recorded.

Internal Quality Auditor Competencies [19] are competencies required for internal auditors of quality management standards in accordance with ISO 19011; about the process approach, risk-based thinking, about the requirements of ISO 9001 2015 and Mastering key tools such as Advance Product Quality Planning (APQP), Statistical Process Control (SPC), Measurement System Analysis (MSA), and Failure Mode and Effect Analysis (FMEA).

The US has a history of developing higher education quality that is handled through accreditation to build globalization, internationalization, and trans-national construction can provide useful insights for developers; The US has the longest tradition of institutional accreditation and programs and is often considered a model of diverse

educational systems [20], [26], [27]. Related to Internationalization, Podgorbunskikh [21] regarded as an organizational adaptation, requiring articulation by leadership while simultaneously instituting a representative and participatory strategic planning process in recognizing and utilizing its cultural strengths [22], [23].

Finally Dill [24] reviewed the experience with "Academic Audit," an instrument of capacity building accountability for Higher Education adopted in the UK, Sweden, New Zealand, and Hong Kong. Academic audits change incentives for cooperative behavior among lecturers to enhance student learning. Identified implementation problems include: training for new processes, uncertainty about the benefits of capacity building, and the main role of information.

4) Training

Training as an inseparable system in improving the quality of Higher Education is a short-term educational process that uses systematic and organized methods and procedures. The process is intended so that participants achieve certain abilities in achieving organizational goals. Therefore, the process is bound to organizational goals. The trainees will learn practical knowledge and skills for a particular purpose. The process of training must be planned, integrated and careful to produce the understanding and skills needed to improve organizational performance [25]. The education and training program will succeed if participants are able to involve themselves in the implementation of tasks and behavior changes that are reflected in their attitudes, discipline, and work ethic [30]. Participant involvement will also create a good mental, emotional, social or physical atmosphere. A training model is considered effective when able and based on curriculum, approaches and strategies that are appropriate to the needs of the participants and the problems that occur to them.

With the identification of the variables determining the quality of higher education, especially variables that can be treated by Higher Education, the results of this study will benefit academicians, especially Higher Education managers in determining the main strategies for improving the quality of research-based Higher Education.

III METHODOLOGY

Quantitative research reveals the relationship between two or more variables that can describe phenomena and which test the influence of variables X_1 (Higher Education Management), X_2 (Internal Quality Auditor Role), and X_3 (Quality of Training ever attended) to Y (Improved quality of Higher Education) and then found the determining variable among the three predictor variables in question. This research was conducted in Semester 1 2019/2020.

1) Sample of Research

This research was conducted based on the perception of stakeholders from 5 private universities (4 Universities in West Java and 1 University in Papua). The intended stakeholders include the Foundation Management, Higher Education Leadership, Director of Quality Assurance, Internal Quality Auditor, Head of Study Program, and 20 lecturers. Based on the stated objectives, this research is inferential quantitative research.

2) Statistical Hypothesis

On an ordinal scale, the Y variable, which is the Improvement of Quality of Higher Education, there is a dominant level in four categories: low, medium, high, and very high. Among the three independent variables, there are determinants that have a positive and significant effect on the Improvement of Quality of Higher Education. In other words, the regression coefficient of determinant (b_1) is positive and significant. The statistical hypothesis proposed is:

$H_0: b_1 = 0$ (there is no influence of determining factors on Quality Improvement of Higher Education).

$H_1: b_1 \neq 0$ (there is the influence of determining factors on Quality Improvement of Higher Education).

The impact of predictors found both singly and multiple can be identified by looking at the value of b in the determinant. In addition, the significance of the value of b will be tested by t-test. The significance of T can be seen from its value. If b is positive, and t is significant at an error rate of less than 0.05, the hypothesis (H_1) will be accepted.

3) Instrument and Procedures

Research data is quantitative in the form of numbers. Ordinal data are in the form of categories and or levels. The ordinal scale used in this study is a Likert scale, which consists of statements and answers such as low, medium, high, and very high depending on the measurement objectives. Data was collected on a self-assessment scale consisting of 20 items, which proved to be valid and reliable. Validity scores of 0.225 to 0.792 were obtained with the reliability index of Cronbach Alpha = 0.830.

4) Data Analysis

Data in each variable are analyzed by frequency distribution after meeting the requirements for normality and homogeneity, and then analyzed by multiple linear regression analysis using the Stepwise Model. After that, researchers develop a causal model. Patterns that influence the independent variable (determinant) on the dependent variable, namely Quality Improvement of Higher Education will be tested by the F test at the 0.05 level. The calculation is done using the SPSS program of version 25. In testing the model, the coefficient of determination of the independent variable on the dependent variable is calculated. The results of the calculation of the three coefficient of determination in this study of the dependent variable are the coefficient of adjusted R^2 . If the significance of r is less than or equal to 0.05, the model is proven significant, because X_{1-3} (selected) affects Y , as many coefficients as adjusted for R^2 .

IV RESULTS AND DISCUSSION

1) Results

Data analysis of stage 1 was carried out to provide a statistical description of each variable; the result is like the following table 1

Table 1: Distribution of Frequencies of Research Variables

	Mean	Median	Std. Deviation	Minimum	Maximum
X ₁	2.9500	3.0000	.82558	2.00	4.00
X ₂	2.5500	2.5000	.75915	2.00	4.00
X ₃	3.6316	3.5000	.76089	2.00	4.00
Y	2.7500	2.5000	.85070	2.00	4.00

Based on the presentation in Table 1 above, it turns out that the average management quality of Higher Education is at a high level where the mean approaches the median; as is the role of internal quality auditors, even though the level is between moderate and high; while the participation of stakeholders in education and training is generally very high tends to be very high; Improving the quality of Higher Education is at a rather high level.

Furthermore, to find the determinants of the improvement of the quality of Higher Education, a step wise regression model of the tests is conducted, the results of which are presented in 3 tables as follows.

Table 2 : Summary Model influences Independent Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788 ^a	.620	.598	.54206
2	.864 ^b	.747	.715	.45620

a. Predictors: (Constant), X₂

b. Predictors: (Constant), X₂, X₁

Based on the results of the regression analysis as above, it turns out that there are 2 models that influence the role of internal quality auditor and Higher Education management variables according to their respective error standards. The magnitude of the effect of the internal quality auditor's role variable (Model 1) on the improvement of the quality of Higher Education is 59.80%. The magnitude of the influence of the role of the auditor on internal quality and Higher Education management (Model 2) to PT management is 71.50%. To find out how high the level of significance of each model can be examined in the following table 3.

Table 3: Anova^a

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.163	1	8.163	27.781	.000 ^b
	Residual	4.995	17	.294		
	Total	13.158	18			
2	Regression	9.828	2	4.914	23.612	.000 ^c
	Residual	3.330	16	.208		
	Total	13.158	18			

a. Dependent Variable: Y

b. Predictors: (Constant), X₂

c. Predictors: (Constant), X₂, X₁

Based on the Anova test results, model 1 is obtained F = 27.781 with a significance level = .000; this means that the role of the internal quality auditor is a significant determinant of Higher Education management; model 2 is obtained F = 23.612 with a significance level = .000; this means that the auditor's role in internal quality and Higher Education management is a significant determinant of Higher Education management. Furthermore, to draw conclusions based on the t-test, the results can be checked in the following table.

Table 4: Coefficients^a t-test results

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.406	.290		1.398	.180
	X ₂	.876	.166	.788	5.271	.000
2	(Constant)	-.169	.318		-.532	.602
	X ₂	.787	.143	.707	5.488	.000
	X ₁	.368	.130	.365	2.829	.012

a. Dependent Variable: Y

Based on the results of the t-test as in table 3 above, among the three independent variables, there are determinants that have a positive and significant effect on Quality Improvement of Higher Education, namely model 1, the role of internal quality auditors and with Higher Education management (model 2). In other words, the hypothesis which states that there is an influence of determining factors on Quality Improvement of Higher Education is accepted; what is a determining factor in quality improvement of Higher Education is the role of internal quality auditors (model 1) and with Higher Education management (model 2).

2) Discussion

This research succeeded in finding 2 models of determinants in improving the quality of Higher Education; Model 1: Higher education quality improvement of almost 60% is determined by the role of internal quality auditors; Model 2, the role of internal quality auditors accompanied by Higher Education management quality influences 71.50%. According to Susilawati and Sembiring [17], internal quality audits play an important role in

increasing the effectiveness of the quality management system. Quality management of Higher Education which applies the Determination of Higher Education Standards, Implementation of Higher Education Standards, Evaluation of the Implementation of Higher Education Standards, Higher Education Control, and Improvement of Higher Education Standards where the Evaluation activities are carried out by Internal Quality Auditors [29], determines the quality improvement of Higher Education. Internal quality auditors who determine are those who have competence, which is required for quality management standards in accordance with ISO 19011: about the process approach, risk-based thinking, about the requirements of ISO 9001 2015 and Mastering key tools such as Advance Product Quality Planning (APQP), Statistical Process Control (SPC), Measurement System Analysis (MSA), and Failure Mode and Effect Analysis (FMEA) [19]. The results of Kaur, Dalwinder, and Bhalla [28], shows that higher education that ranks higher accreditation, for all factors related collectively - the average teaching environment, research environment, educational material, infrastructure and lecturer motivation - shows significant differences from all factors related to students (education, placement and extracurricular activities). With 2 models of determinants of quality improvement of Higher Education found, the Higher Education management cycle should focus on internal quality auditors, starting from planning, budgeting, organizing and controlling.

V CONCLUSION

The results of this study indicate that the average quality of Higher Education management is at a high level; the level of the role of internal quality auditors is between moderate and high; while the participation of stakeholders in education and training is generally high and tends to be very high; quality improvement of Higher Education is at a rather high level. This research succeeded in finding 2 models of determinants in improving the quality of Higher Education); Model 1: Higher education quality improvement of almost 60% is determined by the role of internal quality auditors; Model 2, the role of internal quality auditors accompanied by Higher Education management quality influences 71.50%. With the finding of 2 models of determinants of quality improvement of Higher Education, the Higher Education management cycle should focus on internal quality auditors, starting from planning, budgeting, organizing and controlling.

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