Model of Higher Education Quality Improvement in Indonesia: Relationship between HRM and Information Technology Literacy

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Abstract. The purpose of this study was to produce a model for improving lecturer performance by revitalizing the components of competence, motivation, and information technology literacy. The object of this study took a sample of 160 lecturers from various private universities in the city of Makassar whose scientific fields concentrated on informatics and computer management. The use of mediation models is done using AMOS. Results of this study also state that the high competence of lecturers has not been able to contribute significantly to the improvement of information technology literacy. Low motivation does not contribute to improving information technology literacy. Competence and motivation, as well as information technology literacy, proved to be able to help significantly in improving the performance of lecturers. Besides that, information technology literacy is not able to show its role in explaining the influence of competence and motivation on the performance of lecturers. The novelty of this research is the addition of information technology literacy components as a model to improve lecturers’ performance in Higher Education.

Keywords: Higher Education, Human Resources Management, Information Technology Literacy

1. Introduction

One of the novelties of this research is the use of information technology in supporting lecturer performance conducted using modeling to be analyzed using structural equation modeling for mediation and moderation models [1]. The intended modeling is to test whether the mediation model of Information and Communication Technologies has a higher contribution compared to the mediation model in analyzing the performance of lecturers. Changes that have taken place in all sectors are due to a revolution in technology and information [2]. The education sector is one of the social segments in which the global market has been formed, there is more intensive cross-country, and cross-regional interactions and the contribution of information and communication technology has a significant role in the implementation of work [3]. In the world of education, the quality of professionalism is a determining point of the quality of learning [4]. The rapid development of information technology and computers has received positive response in the community. Various public services have implemented ICT [5]. In the future the duties and functions of a lecturer are increasingly complex, this is due to the rapid development of science, and also the demand to use E-learning or Information Technology cannot be avoided. This situation requires competency to adapt according to the needs of higher education development [6].

For this reason, the readiness of a lecturer to improve the quality and intensity of his academic activities is absolutely an awareness and planned comprehensively and integrally. This is mainly related to the implementation of the higher education tri dharma namely education/teaching, research and community service.
These three activities are added with coaching activities and are likely to be followed by structural tasks which are one measure of academic performance [7].

Furthermore, the professionalism of lecturers in Indonesia has not shown encouraging results. Data held by the Ministry of National Education Research and Development shows that of the 120,000 permanent lecturers of a private university (PTS) and public university (PTN) in Indonesia, there is still 50.65 percent or around 60,000 of them have not had a master's degree or have just completed their undergraduate study. This fact is very ironic considering that one of the great aspirations of higher education in Indonesia is to become an international class university (world class university). With 50% of lecturers who are still qualified undergraduate (S1), it is very difficult shortly to reach these goals. Especially in the midst of such conditions, there was no significant effort from the lecturers to improve their professionalism as a central element of the university. Some of them are even less aware that the teaching profession, like other professions, is also related to the dimensions of knowledge, expertise, and ethics that need to be continually developed [8], [9].

With the various forms of responsibilities mentioned above, it is appropriate for a lecturer to have a loud and clear motivation, namely the existence of a high level of dedication to achievement. With the frequency of lecturers motivated to do their jobs well, they will improve the quality and job satisfaction they want because the strength of their motivation or work motivation will determine the size of job satisfaction [10]. Understanding lecturer competencies are still low; it is necessary to socialize the improvement of lecturer competencies through the provision of opportunities to follow higher levels of education for each lecturer, need to be including in various professional education and training in their fields. And actualizing the competency theory that is an underlying characteristic of an individual which is causally related to criterion-referenced effective or superior performance in a job or situation [11]. The theory explains that competency has significance for lecturers. In increasing satisfaction and performance, this condition explains that lecturers as professionals are paid by the State according to their pedagogical, professional, personal and social abilities to achieve organizational goals. The lecturers as educational staff have a very strategic position, which has a direct influence on the learning process, graduate quality, and competitive output patterns. This is means that the quality of their teaching staff determines the quality of students as the central element of education staff [12]. motivation, and utilization of information technology through job satisfaction on the performance of lecturers.

**Human Resources Management**  
The lecturers competencies in Indonesia explained in Government Regulation Number 19 of 2005 concerning National Education Standards, namely pedagogy, professional, personality, and social skills which are four competencies that need to be carried out by lecturers. Competence becomes an essential element in an individual's human resources to achieve his goals. Included in this case are the lecturer competencies needed in the progress of higher education [13]. Because the teaching profession is different from other businesses because specific characteristics must be implemented so that it can direct students to the four pillars of education issued by UNESCO (learning to know, learning to do, learning to be and learning to live together). In this case, the lecturer characteristics needed are: (1) Understanding the teaching profession as a genuineness call, (2) during the teaching process always looking for positive rewards, so that students can do self-esteem, (3) the attitude of the lecturers is not only sympathetic but also needs to be firm, (4) realizing that as a lecturer in the global era it should have the ability to be a learner (lifelong learning) and not just an ambivalent profession.

Ideally, the ability and expertise of the lecturer must continue to be honed and developed by universities from time to time. Improving the quality of lecturers in higher education can be done by various methods and methods, including providing continuous education and training programs, improving lecturer development methods and strategies through fulfilling competencies in their fields based on definite knowledge, skills and work culture [14]. Apart from that, the drivers that can trigger an increase or decrease in a lecturer's performance are mainly influencing by both intrinsic and extrinsic motivational factors. Motivation plays a vital role in changing worker behavior. This also applies to lecturers as part of human resources in this case labor. In other words, improvement in how to motivate lecturers will result in increased quality of lecturer performance. The best-known motivation theory is the hierarchy of needs of Abraham Maslow. Maslow's view of human relations movement focuses on the requirement as a key foundation. Maslow's motivational theory rests on two main principles. First, the policy of deficiencies, namely satisfied needs is not a behavioral motivator [15].

Improving the quality of higher education in Indonesia can be realized if there is an improvement in the quality of the performance of the lecture itself. Lecturer performance is the ability to carry out work or tasks that the lecturer has in completing a job. Lecturers who have performance are lecturers who carry out their duties responsibly. The nature of responsibility characterizes qualified lecturers and have attitudes and personalities in carrying out Tri Darma and mastery of technical expertise, being able to teach students and master concepts, processes, and philosophical foundations. In other words, a qualified lecturer is a professional
lecturer in the sense that he can make decisions professionally, responsibly and provide services to the community. Therefore the performance of lecturers has specific criteria that are by their competencies as educational educative staff [10].

**Information Technology Literacy as Supporting the Quality of Higher Education in Indonesia**

Technology is seen as a tool used by individuals in helping carry out tasks in the evaluation. In this context, information technology includes computers (mainframes, mini, micro), software (databases), networks (internet, intranet), electronic commerce, and other types of technology [16]. Because the experience of using technology will affect users, whether the technology has a better or worse impact on performance, it will affect future performance [17]. Empirically, it was founded the fact that to receive information technology it is not necessary to think first whether the information technology provides benefits or not but is a necessity and necessity so that information technology must be considered easy to use. Information systems and information technology can be used effectively to contribute to performance, so members of the organization must be able to use the technology properly. At present, information technology is considered natural, because training has often been carried out aimed at improving the skills of using information technology by lecturers.

**Linkages between Human Resources Components and Information Technology Literacy**

Information technology and job satisfaction significantly affect workers to work productively because job satisfaction can support the excellent behavior of the workers themselves [18], that information systems and information technology can be utilized effectively to contribute to performance, so members of the organization must be able to use the technology properly. The ability is an essential factor in improving work performance capabilities related to the knowledge and skills that a person has. [19] state that the use of computers provides excellent benefits for companies, primarily related to efficiency and effectiveness. The process of changing manual work methods into a computerized system is expected to make the work can be done quickly and accurately so that the overall performance of the organization can increase. the potential benefits of computer media that can be used to improve the effectiveness of the learning process to be able to create a continuous learning process. Apart from that social factors and conditions that facilitate positive and non-significant effects on the use of information technology, while effect, complexity, and suitability of tasks have a negative and no significant impact on the use of information technology.

2. **Research Methods**

This research was conducted on the basis of the development of several models and theoretical frameworks that have been built such as the model for lecturer performance (WL) in Indonesia which has been previously examined by Kusuma, et.al [7] which contains lecturers' main tasks in Indonesia which include Tri Dharma Higher Education (Education, Teaching, and Community Service). Then the competency model (COM) which is measured by the dimensions of Pedagogic competence, Professional Competence, Personality Competence, and social competence, motivation (MOV) and job satisfaction (WS) and Education quality are measured by dimensions of responsibility, progress, achievement, recognition, and specifications work refers to the Mc Clelland theory. The use of technology (IT) proposed by Robbins [20] measured by dimensions of measurement of hardware, software, and network data management. Dimensions and variables were estimated based on the Likert scale (1 = Strongly disagree - 5 Strongly Agree). The sampling method used proportionate stratified random sampling with the criteria of the population of the number of lecturers at the private tertiary education sector (STMIK) in Makassar - Indonesia as many as 285 lecturers. Samples were 39 samples (STMIK Handayani), 74 samples (STMIK Dipanegara), 18 samples (STMIK Kharisma), 20 samples (STMIK Akba), 15 samples (STMIK Professional). So that the total sample total is 166 samples. Modeling tests and data analysis methods are carried out with different programs and models. The use of mediation models using Structural Equation Model with AMOS [21], [22], [23]

3. **Results and Discussion**

3.1 **Characteristics of Respondents**

The characteristic in question is the identity of the lecturer at each university which consists of; (1) gender, (2) age, (3) rank and class, (4) years of service and (5) level of education. Briefly, the characteristics of respondents can be seen in (table 1):
Table 1. Features of Lecturer

| No | Criteria       | Classification     | Total Amount | Frequency | %     |
|----|----------------|--------------------|--------------|----------|-------|
| 1  | Gender         | Men                | 91           | 56.87    |       |
|    |                | Women              | 69           | 43.13    |       |
| 2  | Age (Year)     | 30 <               | 43           | 27.18    |       |
|    |                | 31 - 40            | 57           | 34.96    |       |
|    |                | 41 - 50            | 41           | 25.72    |       |
|    |                | > 50               | 19           | 12.14    |       |
| 3  | Rank and group | Asisten Ahli       | 65           | 40.62    |       |
|    |                | Lektor             | 55           | 34.46    |       |
|    |                | Lektor Kepala      | 40           | 25.24    |       |
| 4  | Working Time   | 5 >                | 60           | 37.57    |       |
|    | (Year)         | 6 – 10             | 64           | 39.81    |       |
|    |                | 11 – 20            | 24           | 15.04    |       |
|    |                | < 21               | 12           | 7.28     |       |
| 5  | Education Status | Magister      | 147          | 91.87    |       |
|    |                | Doctoral           | 23           | 8.13     |       |

The description of the characteristics of the respondents in table 1 shows that the lecturers who taught at STMIK in the city of Makassar were mostly male, 91 people or 56.87%, respondents had the age of 31-40 years as many as 57 people or 34.96%, rank and the class of expert assistant respondents as many as 65 respondents or 40.62%, the working period of respondents between 6-10 years as many as 64 people or 39.81%, and education of respondents is magister 147 people or 91.87% and the rest who have doctoral training have just reached 8.13% or around 23 people.

3.2 Model Analysis of improving lecturer performance with AMOS

The results of confirmatory factor analysis (CFA) show that the overall value of the latent construct variable or loading factor the required (cut off point) \( > 0.60 \) or so it can be stated that the indicator of variable formation is seen to be of the same dimension with other indicator variables to explain a variable. Competency variable contributions (X1) and work motivation (X2) towards information technology literacy (Y1) of \( R^2 = 0.005 \) while the contribution of Competency variables (X1), Work motivation (X2) and Information technology Utilization (Y1) on lecturer performance by \( R^2 = 0.794 \) or 79.40%. The results of testing the feasibility of structural models through the path diagram are presented in (Fig. 2)
Figure 1. Full Path Diagram of AMOS Structural Model Testing Model

Furthermore (Fig. 1) also shows the results of testing the full model path diagram of the structural model, which is the basis for conducting a comparison of the index of the suitability of the model with the cut-off value presented in (Table 3) Goodness of fit model.

Table 2. Fit-Index

| The goodness of fit index | Cut-off Value | Result Model* | Description |
|---------------------------|---------------|---------------|-------------|
| Chi_Square (DF = 90)      | expected small | 100,783 ≤ (0,05 ;90 = 113,145) | Good |
| Probability              | ≥ 0,05        | 0.205         | Good |
| CMIN/DF                  | ≤ 2,00        | 1.120         | Good |
| RMSEA                    | ≤ 0,08        | 0.027         | Good |
| GFI                      | ≥ 0.90        | 0.928         | Good |
| AGFI                     | ≥ 0.90        | 0.892         | Marginal |
| TLI                      | ≥ 0.94        | 0.987         | Good |
| CFI                      | ≥ 0.94        | 0.990         | Good |

Based on Figure 1, it is shown that the results of the conformity analysis of the structural model above are built as a basis for analyzing the relationship between latent variables and hypothesis testing with the aim of knowing the relationship between hypothesized latent variables and the level of significance of causality between the following:

Table 3. Hypothesis Test

| Hypothesis                                | P-Value | Direct Effect | Indirect Effect | Total Effect | Info   |
|-------------------------------------------|---------|---------------|-----------------|--------------|--------|
| Competence ➔ Literacy of Information Technology | 0.502   | 0.066         | 0.000           | 0.066        | Rejected |
| Motivation ➔ Literacy of Information Technology | 0.832   | -0.021        | 0.000           | -0.021       | Rejected |
| Competence ➔ Lecturer Performance | 0.000   | 0.579         | 0.030           | 0.609        | Accepted |
| Motivation ➔ Lecturer Performance         | 0.000   | 0.477         | -0.009          | 0.468        | Accepted |
| Literacy of information Technology ➔ Lecturer performance | 0.000   | 0.453         | 0.000           | 0.453        | Accepted |

3.3 Discussion

The results of the analysis show that the essential or dominant factor that reflects the lecturer competency variable is the indicator of social competence which means that the lecturer must have the ability to communicate and interact effectively and efficiently with students, fellow lecturers, and the surrounding community so that social competence can be formed. In reflecting the competence of lecturers. The results of this study confirm that the lowest competency indicators based on respondents' responses and current loading factor values are indicated by indicators — personality competencies that show that lecturers have not been fully able to maintain authority and have not been fully able to become role models for students, so it is important to be improved. Apart from that the high competence of lecturers can lead to an increase in information technology literacy. The results of hypothesis testing prove that lecturer competency has no significant effect on information technology literacy. The
statement can be interpreted that the high competence of lecturers has not been able to provide a real meaningful contribution to the improvement of information technology literacy. This is because the lecturer has not been able to manage himself in carrying out daily tasks and Tri Dharma, that lecturers have not fully possessed the maximum mastery of teaching materials and have limitations in regulating learning and the evaluation process that is carried out in the teaching and learning process is not optimal so that it has an impact on the low use of Hardware or hardware in supporting the smoothness of the lecture process and other Tri dharma University. So that mastery of technology is considered important to be improved in order to improve performance and quality Education in college.

In the aspect of Human Resources component, the dominant factor that reflects the lecturer motivation variable is the Indicator of Award Needs, which means that the lecturer in carrying out his activities is encouraged because of the desire in the lecturer to be appreciate including feelings, beliefs, competencies, achievements, mastery, independence and academic freedom. The results of this study confirm that the Self Actualization currently indicates the lowest indicator of motivation Needs sign, which states that the lecturer has not entirely been able to prove and show himself to others, the lecturer has not been fully able to develop as much as possible the potential he has. Apart from that the low motivation of lecturers resulted in a decrease in the mastery of information technology literacy. The results of hypothesis testing prove that lecturer motivation has a negative and not significant effect on information technology literacy. Of course, low motivation will influence interest in enriching technology literacy, because information technology literacy possessed by lecturers is now the primary and mandatory requirement to support the performance of the lecturer and as a benchmark of the quality of education in higher education.

3.4 Conclusion

High lecturer competencies have not been able to provide a real (meaningful) contribution to the improvement of information technology literacy. This is because the lecturer has not been able to manage himself in carrying out daily tasks and Tri Dharma College, that lecturers have not fully possessed the maximum mastery of teaching materials and have limitations in regulating learning and the evaluation process that is carried out in the teaching and learning process is not optimal so that it has an impact on the not yet optimal use and utilization of available network or internet connections for lecturers to support the implementation of the tri dharma of higher education. High lecturer competencies are proven to be able to make a real (meaningful) contribution to the improvement of information technology literacy. This is because the lecturer has not fully developed all the potential that is contained in him so that it has an impact on the not yet optimal use and utilization of available network or internet connections for lecturers to support the implementation of the tri dharma of higher education. High lecturer competencies are proven to be able to make a real (meaningful) contribution to the improvement of lecturer performance. This is because the lecturer has a high understanding and knowledge of the lecture material and the lecturer can evaluate the teaching and learning process thoroughly and correctly and can develop the potential of the student so that it has an impact on the ability of the lecturer to carry out the Tridarma for support activities.

High lecturer competencies are proven to be meaningful for improvement of lecturer performance. This is because the lecturer has a high understanding and knowledge of the lecture material and the lecturer can evaluate the teaching and learning process thoroughly and correctly and can develop the potential of the student so that it has an impact on the ability of the lecturer to carry out the Lecturer Workload for support activities. High information literacy is proven to be able to make a real contribution to the improvement of lecturers' performance. This is because lecturers are highly capable of operating software, that in general, the implementation of Lecturer Workload tertiary institutions requires software support in its application and these conditions have been implemented well so that it can provide a real influence on the implementation of community service activities and Lecturer Workload for support activities other colleges. Information technology literacy is not able to show its role in explaining the impact of competence and motivation on the performance of lecturers. It is necessary to change the paradigm of thinking and severe efforts of university leaders and lecturers in the city of Makassar to improve information technology literacy, because in testing the model it was found that information technology literacy support was not able to enhance competency and motivation.
towards lecturer performance. It is necessary to change the paradigm of thinking and severe efforts of university leaders and lecturers to improve the competence of lecturers' personalities as a representation of lecturers' competence through increasing the authority and ability of lecturers to become role models for students. It is necessary to change the paradigm of thinking and severe efforts from the leaders and lecturers in particular and Indonesia in general to increase the motivation of lecturers through increasing needs Actualization by increasing efforts from within the lecturer to prove and show themselves to others through increasing all potential owned by the lecturer. It is necessary to change the paradigm of thinking and severe efforts of university leaders and lecturers to improve the mastery and ability of lecturers on hardware because the use of information technology is always up to date. It is necessary to change the paradigm of thinking and severe efforts of university leaders and to improve the performance of lecturers through increasing the quantity and quality of research and development of scientific work that has an impact on the quality of education in higher education.

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