The Influence of Information Systems and Supervision on Lecturers' Motivation in Conducting Research

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ABSTRACT

The motivation of lecturers is a crucial factor in conducting research. Quality research requires support from information systems, supervision, and motivation. Lecturers at universities often have less motivation to conduct research compared to their teaching duties, which yield quicker results. This study aims to analyze the influence of information systems and supervision on the motivation of lecturers to conduct research in the Midwifery Department of Semarang Poltekkes. This quantitative study employed a cross-sectional approach. A total sampling technique was used, involving 79 respondents who completed questionnaires distributed via Google Forms. The analysis was conducted using SmartPLS v.3 with SEM (Structural Equation Modeling). The outer model testing demonstrated convergent validity with loading factor values greater than 0.7, AVE values greater than 0.5, and HTMT between constructs less than 0.9. Cronbach's alpha values were greater than 0.7, and the composite reliability value for all constructs was greater than 0.7, indicating a reliable PLS-SEM model. Inner testing of the SEM PLS fit model showed strong predictive relevance and the SRMR value of the model met the fit criteria. The results showed that supervision had a positive and significant effect on motivation, with a p-value of 0.000 less than 0.05, a statistical T-value of 4.032 greater than 1.96, and a positive path coefficient of 0.287; the information system had a positive and significant effect on motivation, with a p-value of 0.000 less than 0.05, a statistical T-value of 7.402 greater than 1.96, and a positive path coefficient of 0.536. These findings indicate that information systems and supervision significantly affect the motivation of lecturers to conduct research in higher education.

Keywords: *lecturer motivation, information systems, supervision, research, midwifery education*

1. INTRODUCTION

Lecturer motivation is a crucial factor in quality research activities. Qualified lecturer research is important for the development of science and the improvement of the quality of education in higher education as a form of scientific transformation [1]. However, in practice, lecturers are often more motivated to focus on teaching tasks than research activities. This is especially the case because teaching activities produce faster and more tangible results compared to research that requires more time and resources to create superior research [2] The low motivation of lecturers in research can have an impact on the lack of scientific publications, which is an important indicator in the assessment of academic performance and the reputation of the institution as a form of professional duty obligation [3].

One of the efforts to increase the motivation of lecturers in research is to provide adequate information system support and effective supervision. An efficient information system allows lecturers to access relevant resources, manage research data, and publish research results more easily in addition to lecturer training and motivation[4]. Previous studies have shown that the support of technology and reliable information systems has a positive influence on academic productivity and research involvement in processing research data [5]. Effective supervision also plays an important role in guiding and motivating lecturers to conduct research. Good supervision can help lecturers overcome obstacles

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faced during the research process and provide moral and motivational encouragement in conducting research and teaching [6].

This study aims to analyze the influence of information systems and supervision on lecturers' motivation in conducting research at the Department of Midwifery, Semarang Polytechnics.

1.1 Literature Review

The motivation of lecturers to conduct research has become a topic that is widely studied in the context of higher education. Work motivation, according to Vroom's (1964) work motivation theory, is driven by the expectation of results, incentive value, and perception of the relationship between effort and achieved results [7]. In the academic field, lecturers' motivation is often influenced by institutional support such as the availability of adequate information systems and the existence of structured supervision [8].

1.1.1 The Influence of Information Systems on Research Motivation

The role of information systems in supporting research activities is very important to increase lecturer productivity. According to Davis (1989), the appropriate application of information technology can reduce the administrative and technical burden in research, so that lecturers focus more on the substantial aspects of the research itself [9]. Research by Lau & Woods (2009) also found that integrated information systems facilitate access to relevant data, literature, and other resources, as well as facilitate the process of managing research data [9]. Furthermore, a study by Sadeghi & Farzaneh (2012) showed that the availability of adequate technology has a positive correlation with an increase in lecturers' academic motivation, especially in scientific publications [10].

1.1.2 The Effect of Supervision on Research Motivation

Supervision is an important aspect of increasing lecturers' research motivation. Good supervision can include mentorship, feedback, and moral support that help lecturers overcome various challenges in the research process [11]. Based on research by Garet et al. (2001), effective supervision can improve lecturers' competence in research and strengthen their commitment to the research project being carried out [12]. Research conducted by Raza et al. (2019) found that intensive supervision and continuous guidance play a significant role in increasing lecturers' research productivity [11]. Studi lain oleh Yoon et al. (2014) indicate that continuous supervision and effective communication between lecturers and supervisors increase confidence and Lecturer Motivation to Produce Quality Research [13].

1.1.3 The Combination of Information Systems and Supervision in Increasing Motivation

Previous research has also shown that the combination of information system support and good supervision has a greater impact than if these factors stood alone. For example, a study by Dumais & Nielsen (2003) showed that lecturers who received technology support and supervision had higher motivation to conduct research [1]. This is also supported by research by Schunk & Zimmerman (2012), which states that information technology support integrated with effective supervision will help lecturers in managing their research more efficiently, thereby contributing to increased research productivity in higher education [14].

Through this literature review, it can be seen that both information systems and supervision have an important role in increasing the motivation of lecturers to conduct research. This finding is in line with the results of the study which shows that the information system and supervision have a positive effect on the motivation of lecturers in conducting research at the Semarang Polytechnic. This literature support reinforces that efforts to increase lecturer motivation in research need to be balanced with the development of effective information systems and continuous supervision.

Studies show that a good information system increases the motivation of lecturers to conduct research (Davis, 1989) [14]. Research by Chen et al. (2020) states that a comprehensive information system can improve the quality of research and lecturer engagement (Chen et al., 2020) Good supervision also plays an important role in increasing motivation [15].

2. METHODOLOGY

This study uses a quantitative approach with a cross-sectional design. The sampling technique used was total sampling, involving 79 respondents. Data was collected through a Google Forms questionnaire and analyzed using SmartPLS v.3 with the SEM method. This study uses a quantitative approach with a cross-sectional design to analyze the influence of information systems and supervision on lecturers' motivation in conducting research. The quantitative method was chosen because it is appropriate to evaluate the relationship between variables and measure the degree of significance of the effect of each independent variable on the dependent variable.

2.1 Research Design

The research was conducted at the Department of Midwifery of the Semarang Polytechnic. The cross-sectional design allows the collection of data from respondents at a given time to obtain a comprehensive picture of the variables being studied.

2.2 Population and Sample

The population in this study is all lecturers in the Department of Midwifery, Semarang Polytechnic. The

total sampling technique was used to include all members of the population, which was 79 respondents. The total sampling technique was chosen to ensure that the entire population was represented in the study so that the results of the analysis could reflect the characteristics and motivation of the research in all lecturers in the department.

2.3 Data Collection Instruments

Data was collected using a questionnaire designed based on the variables studied, namely information systems, supervision, and lecturers' motivation in conducting research. This questionnaire is distributed through the Google Forms platform to facilitate online data collection. Each item on the questionnaire is measured using a 4-point Likert scale, with a value range of 1 (strongly disagree) to 4 (strongly agree)

2.4 Data Analysis

Data analysis was carried out using the Structural Equation Modeling (SEM) method with the help of SmartPLS software version 3. SEM was chosen because it was able to analyze the relationship between several independent variables and dependent variables simultaneously, as well as evaluate the research model more accurately

Outer Model Test: The outer model test is carried out to ensure the validity and reliability of the research instrument. The validity of convergence is tested by looking at the loading factor value for each indicator, which must be greater than 0.7, and the Average Variance Extracted (AVE) greater than 0.5. In addition, the Heterotrait-Monotrait Ratio (HTMT) between constructs is expected to be less than 0.9 to indicate the validity of discrimination Cronbach's alpha value and composite Reliability for all constructs were also analyzed, with values greater than 0.7 indicating good reliability [7].

Inner Model Test: Inner model tests are performed to see the fit model and predictive relevance of the SEM model used. The Standardized Root Mean Square Residual (SRMR) value is used to determine the degree of fit of the model, where a low SRMR value indicates that the model is following the research data.

2.4 Hypothesis Testing

Hypothesis testing was carried out to evaluate the influence of each independent variable (information system and supervision) on the dependent variable (lecturer motivation). The path coefficient, statistical T-value, and p-value are used to assess the significance of the relationship between variables. A relationship is considered significant if the p-value is less than 0.05 and the statistical T-value is greater than 1.96

3. RESULTS AND DISCUSSION

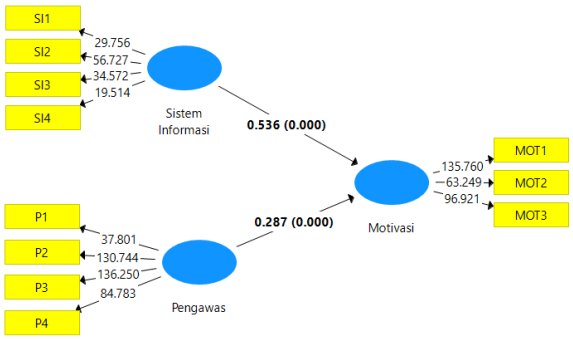

Figure 1. The SEM PLS Model Testing

The outer model testing demonstrated convergent validity with loading factor values greater than 0.7, AVE values greater than 0.5, and HTMT between constructs less than 0.9. Cronbach's alpha values were greater than 0.7, and the composite reliability value for all constructs was greater than 0.7, indicating a reliable PLS-SEM model. Inner testing of the SEM PLS fit model showed strong predictive relevance and the SRMR value of the model met the fit criteria. The results showed that supervision had a positive and significant effect on motivation, with a p-value of 0.000 less than 0.05, a statistical T-value of 4.032 greater than 1.96, and a positive path coefficient of 0.287; the information system had a positive and significant effect on motivation, with a p-value of 0.000 less than 0.05, a statistical T-value of 7.402 greater than 1.96, and a positive path coefficient of 0.536.

The results of this study show that both information systems and supervision have a positive and significant influence on lecturers' motivation in conducting research at the Department of Midwifery, Semarang Polytechnic. This finding is in line with previous studies that emphasize the importance of institutional support in increasing the motivation of educators, especially lecturers, to conduct research.

3.1 The Influence of Information Systems on Motivation

The results of the analysis showed that the information system had a positive and significant effect on lecturers' motivation (p-value = 0.000; T-stats = 7,402; path coefficient = 0.536). These findings follow the theory that an effective information system can improve work efficiency, ease of access, and reduce administrative burden, thus allowing lecturers to focus more on research [16]. Reliable information systems facilitate quick access to data, scientific references, as well as research funding opportunities, all of which contribute to increased faculty motivation.

A similar study was found in a study by Chen et al. (2020) which stated that the use of comprehensive information systems can improve the quality of research and lecturers' involvement in research because they have

better access to various research resources needed [16][17]. In addition, a study from Alshurideh et al. (2019) shows that lecturers who have access to information systems tend to be more motivated in conducting research and completing other academic assignments with better quality results [17].

3.2 The Effect of Supervision on Motivation

Supervision also had a positive and significant influence on lecturer motivation (p-value = 0.000; T-stats = 4,032; path coefficient = 0.287). These results show that effective supervision has a direct impact on lecturers' motivation to conduct research. Supervision aids in providing the guidance, constructive feedback, and supervision necessary to improve academic performance (Hattie & Timperley, 2007). With adequate supervision, lecturers feel more supported and motivated to achieve higher research standards.

A study that supports these findings is a study by Tschannen-Moran and Gareis (2015) which found that directed supervision can increase the confidence and motivation of educators in achieving the set research targets [5]. Furthermore, research conducted by Karakas et al. (2019) revealed that structured supervision helps improve the quality of lecturers' research and provides clear direction for their academic development [6].

3.3 Discussion of Research Results in the Context of Higher Education

Lecturers' motivation in conducting research is a relevant issue in the higher education environment, especially in institutions that prioritize the Tri Dharma of Higher Education, which includes education, research, and community service. The low motivation of lecturers in research is often caused by heavy workload factors, lack of support from institutions, and lack of access to adequate research facilities (Wahyu, 2017) [3]. This research proves that improving the quality of information systems and supervision can be a strategic step to overcome these challenges.

According to Robbins & Judge (2013), structural support in the form of supervision and ease of access to information greatly affects a person's level of motivation in the work environment, including in the academic field The results of this study reinforce the importance of the role of information systems and supervision that support lecturers to be more motivated in researching so that they are not only focused on teaching tasks [18].

The results showed that information systems and supervision had a positive effect on lecturers' motivation in research. Effective information systems increase access and efficiency, in line with the theory put forward by Davis (1989) [19]. These findings are reinforced by Chen et al. (2020) Good supervision also increases motivation, as expressed by Tschannen-Moran and Gareis (2015) [20] .

4. CONCLUSION

This study found that information systems and supervision have a significant influence on lecturers' motivation in research. The suggestions given include improving the information system, the quality of supervision, providing incentives, and periodic evaluations. This study shows that information systems and supervision have a positive and significant influence on lecturers' motivation in conducting research at the Department of Midwifery, Semarang Polytechnic. A good information system provides easy access to research data and resources so that it can reduce administrative burden and increase lecturers' focus on research. Effective supervision is also proven to provide direction, guidance, and support that strengthens lecturers' motivation in achieving research goals. Thus, both structured information systems and sustainable supervision play an important role in increasing the research motivation of lecturers in higher education.

Development of Research Information SystemsIt is recommended that universities continue to develop and update research information systems that facilitate quick access to data, reference sources, and funding opportunities. A responsive and user-friendly system will help lecturers manage their research more effectively. Improving the Quality of Supervision. The campus management can provide training for supervisors or department leaders in providing supportive and productive supervision. Directed supervision and adequate guidance will have a positive influence on lecturers' motivation in research. Awards and Incentives As a form of further support, universities can consider providing incentives or awards for lecturers who are active in research, to maintain and increase their motivation. Periodic Evaluation of the System and SupervisionPeriodic evaluation of the information system and supervision process needs to be carried out to assess its effectiveness. Thus, the university can continue to improve the quality of support provided to lecturers. Facilitation of Research Competency Development Providing training and workshops related to research methods and data analysis can also increase the confidence and motivation of lecturers to be more actively involved in research activities.

AUTHORS' CONTRIBUTIONS

The first author prepares the preparation of the report, the 2nd and 3rd authors prepare statistical data, and the fourth researcher prepares the discussion.

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