

How to Improve Scientific Publication Performance of Private University Lecturers: An Empirical Analysis on Individual and Institutional Factors

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Abstract

Indonesian scientific publications on Scopus show encouraging increase by being listed as number 1 in Southeast Asia. However, fewer literary contribution by private university compared to those made by state university. Thus this study investigates which factors will impact publication performance of private university lecturers. Using multiple linear regression analysis of 226 data, it is found that motivation, self-efficacy, research skills, research time, and training are proven to have positive impact on publication performance. **Findings.** Teaching workload was found to have significant negative impact, while supporting resources were the only variable that had no impact on publication performance. This research has contribution towards institutional policies in encouraging lecturers to produce scientific publications by strengthening the influencing factors.

1. Introduction

Lecturers are key resources that support the performance of higher education institutions through the implementation of teaching, research, and community service. Currently, universities are demanded to hold a role as the initiators and as disseminators of new knowledge for the benefit of the wider community. This is an important role for universities and research institutions as the main party in research activities that would encourage the advancement of science (Wasfi et al., 2020). Research is an important aspect of higher education process as the main task of lecturers is conducting research, besides from teaching (Zain et al., 2011). Thus, the lecturer's performance in research and scientific publications plays a vital role in the success of their career and the reputation of the institution itself.

In the past years, the number of scientific publications from Indonesia indexed in Scopus have shown a very significant increase. In 2019, Indonesia was ranked as the first in the number of articles indexed by Scopus among ASEAN countries, in which previous years Indonesia's rating was far behind Malaysia and Singapore (Scimago Journal and Country Rank, 2019). However, the number of article contribution submitted by private university lecturers were fewer than those

articles submitted by state university lecturers. Data gathered from National Agency for Research and Innovation Republic of Indonesia shows that the publication of scientific articles in Scopus indexed journals is still largely dominated by state universities (71.9%) compared to private universities (71.9%); and the rest is produced by R & D and Non-Ministry Government Institutions (National Agency for Research and Innovation, 2020). Although, on the other hand, the number of private university is far surpass the number of state university, with 3,171 private university and 122 state university in Indonesia (Ministry of Research and Higher Education of Republic Indonesia, 2018).

This fact is interesting to investigate, especially on the factors that cause the low performance of private university lecturers in conducting scientific publications. Several previous studies in various countries show that there are several factors that can improve the performance of lecturers in producing scientific publications. These factors are generally divided into two, namely individual (internal) factors and institutional (external) factors. Individual factors include motivation (Angaiz, 2015; Bland et al., 2005; Sondari et al., 2016), self-efficacy (Angaiz, 2015; Garnasih et al., 2017; Hemmings and Kay, 2010a; Hemmings and Kay, 2010b), research skills (Angaiz, 2015, Bay and Clerigo, 2013; Fawzi and Al-Hattami, 2017), and research time (Bland et al., 2005; Fawzi and Al-Hattami, 2017; Webber, 2011). Meanwhile, institutional factors include teaching workload (Alghanim and Alhamali, 2011; Zhang, 2014), supporting resources (Dhillon et al., 2015; Pornsalnuwat, 2014, Zhang, 2014), and training (Eloy et al., 2012; Mallinckrodt and Gelso, 2002, Weidman and Stein, 2003).

Angaiz (2015) examined the factors that affect lecturers' research and publication in Pakistan and showed that individual characteristics such as motivation and self-efficacy were influential variables. Similar findings were reported from the research results by Bay and Clerigo (2013) indicating that writing skill is an influencing factor, and by Webber (2011) which showed that the time allocated for research is a factor that affects publication performance.

Apart from the influence of individual factors, institutional factors were also found to be influential in several studies, such as research by Alghanim and Alhamali (2011) which proved that teaching workload also impacts this issue. In addition, Lunyolo and Bakkabulindi (2017) found that the resources provided by institutions greatly influence publication performance. Training as part of the institutional support factor was also found to have an effect on the productivity of lecturers' scientific publications as what mentioned in the results of research by Fennewald (2008).

The results of previous studies which show various factors that influence publication performance can be iterated in the context of private university lecturers in Indonesia. So far, no research that examines the influence of individual and institutional factors that affect scientific publications of private university lecturers in Indonesia has been found. Therefore, this study seeks to analyze the factors that influence publication performance of private university lecturers. It is expected by finding the factors, private higher education institution can take the right policies to improve the performance of scientific publications from their lecturers, both in quantity and quality.

Ivancevich et al. (2013) describe the definition of performance as a set of behaviors related to employee tasks designed to achieve organizational goals. Higher education institutions have performance measures in terms of teaching, research, and community service activities which are reflected in the performance of the human resources in their employment, including lecturers. Therefore, lecturers' performance is a major factor in maintaining the quality of education (Retnowati et al., 2018). The well-maintained performance of lecturers will result in a good quality of education process as well.

Currently, scientific publications are the main benchmark in assessing the performance of lecturers and higher education institutions (Ghabban et al., 2018). Scientific research and publications have a very close correlation. Tien (2007) stated that scientific publications are the main output of scientific research, and are often used as a means of disseminating new scientific discoveries around the world. In higher education, scientific publications play a vital role in the career of a lecturer, which determines promotions, advancement in academic positions, the possibility to obtain grants, and the opportunities to achieve leadership positions (McDonald et al., 2017).

Several previous studies have shown a positive effect of motivation on publication performance. However, intrinsic motivation and extrinsic motivation still show different levels of impact. Bland et al., (2005) found that intrinsic motivation is the variable that has the greatest influence on research productivity. This finding was confirmed in studies by Horodnic and Zait (2015) and Sondari et al. (2016). On the other hand, Nguyen (2015) stated that lecturers do not have intrinsic motivation to conduct research and scientific publications because they are burdened with teaching activities as a source of income. Whereas Chen et al. (2006) as well as Agah et al. (2020) proved that both intrinsic and extrinsic motivation have an equally strong influence on lecturers in producing scientific publications.

Some of these studies indicate variations in the influence of intrinsic and extrinsic motivation on the results of scientific publications. Motivation is a process that explains the intensity, direction, and perseverance of an individual in achieving a certain goal (Robbins and Judge, 2017). In relation to the performance in producing scientific literature, Tien and Blackburn (1996) stated that the motivation of lecturers to conduct research and scientific publications will be greater when it is based on the motive that their work will lead to results with value to the other lecturers. Performance is the result of a combination between the skills function and motivation. This means good results are unlikely to be achieved by someone who is not highly motivated to complete their work. In other words, motivation has a positive correlation with the quality and quantity of scientific publications. Based on the theoretical basis, hypothesis 1 is formulated as follows:

H₁: Motivation has a positive effect on publication performance

Lunenburg (2011) states that self-efficacy is the confidence and ability of a person to learn certain requisite tasks that are necessary to achieve goals. In the context of the production of scientific publications, self-efficacy relates to personal estimates of how well a person can perform a series of tasks related to writing and publishing scientific papers. Thus, the confidence of lecturers in their ability to carry out scientific publications is a form of self-efficacy (Hardré et al., 2011). Previous studies have shown that self-efficacy in research is related to the output of scientific publications, including research by Angaiz (2015), Garnasih et al., (2017), Hemmings and Kay (2010a), Hemmings and Kay (2010b). These studies provide empirical evidence that if self-efficacy is an indicator of high performance output, then the higher the level of self-efficacy of a lecturer, the more likely they will produce scientific publications. This means that lecturers with high self-efficacy see difficulties as challenges, and choose to overcome these challenges rather than avoid them (Garnasih, 2017). Thus, high self-efficacy in research should be positively and significantly correlated with the achievement of scientific work, and vice versa (Hemmings and Kay, 2010a). Based on the theoretical basis, hypothesis 2 is formulated as follows:

H₂: Self-efficacy has a positive effect on publication performance

Bay and Clerigo (2013) found that several indicators such as confidence and skills of lecturers in conducting research had an effect on the output of scientific publications. This finding

is supported by Angaiz (2015) as well as Fawzi and Al-Hattami (2017). A study by Iqbal and Mahmood (2011) also shows that the lack of research skill has a causal relationship with the low output of scientific publications. The research skill here refers not only to the ability of the lecturer to conduct research, but also the ability to transform it into research reports and scientific articles. Angaiz (2015) stated that the research skills of a lecturer will manifest in positive behavior in the form of involvement in research. This indicates that the more capable a lecturer is in researching, the more intensively they are involved in research and this will ultimately result in better scientific publications. Research by Wichian et al., (2009) also agreed that in vice versa, low research experience and skills are the cause of the low output of research and scientific publications. Based on the theoretical basis, hypothesis 3 is formulated as follows:

H₃: Research skill has a positive effect on publication performance.

The ability of lecturers to manage time is the key to success in carrying out teaching, research, and community service assignments. Lack of time to conduct research is a major inhibiting factor for research activities, which is exacerbated by excessive teaching workload and lack of research facilities. A study by Bland et al., (2005) shows a positive correlation between the time spent conducting research and the quality of research output. This finding is supported by Webber (2011) as well as Fawzi and Al-Hattami (2017). Time limitation is indicated to be a prominent issue in research performance in several previous studies, such as in studies by Chen et al., (2006), Webber (2011), and Zhou (2012). When lecturers devote more time to teaching, their performance in conducting research and producing publications will decrease. On the other hand, if lecturers have more time to do research activities, the results of their research and scientific publications will be better. Based on the theoretical basis, hypothesis 4 is formulated as follows:

H₄: The allocation of time for research has a positive effect on publication performance.

Teaching workload is one of the factors that influence research activities and scientific publications by lecturers. A study by Alghanim and Alhamali (2011) shows that teaching workload has an adverse correlation to the quality and quantity of lecturer research. This finding is supported by Wodarski (1991) and by Zhang (2014). Both studies prove that excessive teaching workload will take up the time availability for lecturers to conduct research. This is because the lecturer must allocate time not only for teaching in class, but also for planning all teaching activities starting from making lesson plans to evaluation. This causes lecturers to not have sufficient time to be involved in research-related activities and write scientific publications, even to discuss with their peers (Jung, 2012). This fact indicates that the higher the teaching workload, the lower the performance and publication of scientific papers produced. Based on the theoretical basis, hypothesis 5 is formulated as follows:

H₅: Teaching workload has an adverse effect on publication performance.

Supporting resources for conducting research and making publications is one of the factors that affect the output of scientific publications of lecturers. Bland et al., (2002) stated that access to materials and human resources will improve research performance. This finding was supported in studies by Pornsalnuwat (2014), Zhang (2014), and Dhillon et al., (2015). However, Naikote and Bakkabulindi (2011) found out that there is no correlation between institutional support and lecturer productivity, including in research and scientific publications. Institutional support is seen as important to create and maintain a conducive and productive research environment, which encourages lecturers in producing more research and scientific publications (Dhillon et al., 2015). However, institutional support is a resource needed by lecturers to facilitate research activities and

scientific publications (Nguyen, 2015). The existence of support from institutions in research activities and scientific publications will make it easier for lecturers to carry out these activities. Thus, the performance and quality of scientific publications produced will also improve. Based on the theoretical basis, hypothesis 6 is formulated as follows:

H₆: Supporting resources has a positive effect on publication performance

Training is proven to be one of the external factors that can affect the performance of research and scientific publications. Porter and Umbach (2001) stated that lecturers with better research skills and those who receive training will be more prolific in producing scientific publications. Phillips and Russel (1994) prove that there is a positive correlation between training and output of scientific publications. The results of this study are supported by research by Mallinckrodt and Gelso (2002), Weidman and Stein (2003) and Eloy et al. (2012). Training and development basically relate to achievements in comprehension, knowledge, techniques and practices in improving performance at the individual, collegial and organizational levels (Tahira et al., 2014). Training in research and publication for lecturers is needed to continuously hone their skills in researching and writing scientific publications. Thus, research will increase the quantity and diversity of scientific publications. Based on the theoretical basis, hypothesis 7 is formulated as follows:

H₇: Training has a positive effect on publication performance

Taking into account the theoretical review and previous research, the research model as follows.

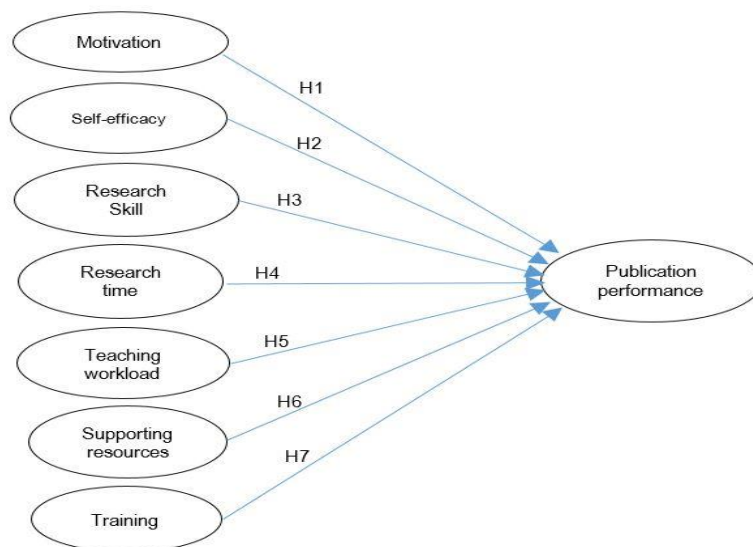


Figure 1. Research Framework

2. Research Method

This research was conducted at private universities in the scope of Higher Education Service Institution Region III Jakarta, with the reason of the number of permanent lecturers in this scope occupies as the largest number of lecturers in Indonesia, which is 32,208 people (Ministry of Research and Higher Education of Republic Indonesia, 2018). It is assumed that the selection of the research location will represent the condition of private university lecturers in Indonesia. The study population was all permanent private university lecturers with various functional positions,

from instructor to professor. Purposive sampling was employed to select the samples that meet the criteria: he/she is a permanent lecturer and has a minimum academic position as assistant lecturer. The data collection is performed using survey in the form of questionnaires. The data collected and can be used for analysis come from 226 respondents.

There are seven independent variables and one dependent variable studied in this research. The independent variables are motivation, self-efficacy, research skill, research time, teaching workload, supporting resources and training, while the dependent variable is publication performance. Each indicator is measured using a Likert scale of 1 - 5, ranging from strongly disagree (1) to strongly agree (5). The research instruments were adopted from previous research as follows.

Table 1. Research Instruments

Variables	References
Motivation	Angaiz (2015)
Self-efficacy	Angaiz (2015), Quimbo and Sulabo (2014)
Research skill	Angaiz (2015)
Research time	Angaiz (2015)
Teaching workload	Angaiz (2015)
Supporting resources	Bay and Clerigo (2013), Kortlik et al. (2002)
Training	Angaiz (2015)
Publication performance	Margaretha and Saragih (2012), White et al. (2012)

To test the hypotheses that have been compiled, several testing steps were carried out, starting from testing the reliability of the variables and the validity of the research instruments to testing the hypothesis. Reliability is determined using the Cronbach's Alpha statistical test to find out whether each item in the instrument is error-free, so that they are able to provide consistent measurement results under different conditions. Validity was tested using bivariate correlation to measure the accuracy of the measuring instruments used in analyzing the variables in the study. The final step is to test the hypothesis to determine the effect between variables, using multiple linear regression analysis.

3. Results and Discussions

3.1 Reliability and Validity Test

The results of reliability test indicate that all variables have met the reliability requirements (Cronbac's Alpha value is above 0.6), which means that each variable has been tested as reliable in measuring the construct under study, hence meeting the requirements of being reliable. The results of the validity test show that all items in the research instrument have met the validity requirements of the instrument, namely the correlation among the scores of the question items shows a significant correlation with the total variable score. The results of reliability test and validity test as presented in Table 2.

Table 2. Validity and Reliability Test Results

Variables and indicators	Validity		Reliability
	Pearson Correlation	Sig (2-tailed)	Cronbac's Alpha
Motivation			.644
I believe I am internally driven to conduct research because I like to do it.	.665	.000**	
I believe I am engaged in research because of my interest in research.	.625	.000**	
I believe I am responsible to advance and contribute to society through innovation, discovery, and creative works.	.568	.000**	
I believe I do research because I have to retain my job and it is important for my recognition and job promotion.	.625	.000**	
I believe I do research because my institution or department wants me to do the research.	.583	.000**	
Self-efficacy			.781
I believe I can write and publish research studies because I have a passion for research.	.776	.000**	
I believe I can do research even in the face of challenges.	.782	.000**	
I believe I can write and publish my research.	.788	.000**	
I believe I am very "up-to-date" on the current published work in my research area(s).	.760	.000**	
Research skill			.813
I believe I have required research skills (e.g. statistics, research design, data collection, and data analysis).	.764	.000**	
I believe I have required skills in identifying funding sources, preparing grants, using research reviews for gaining research grants.	.755	.000**	
I believe I have required computer skills for doing research (e.g. word processing, data management and analysis, presentation software, email, use of SPSS etc.).	.762	.000**	
I believe I have required writing skills for research (e.g. constructing concise/persuasive text).	.744	.000**	
I believe I have in-depth knowledge in my research area.	.726	.000**	
Research time			.655
On average in one year, I was involved more than 12 hours weekly in research.	.735	.000**	
On average in one year, I was involved more than 12 hours weekly in administration.	.562	.000**	
On average in one year, I was involved more than 12 hours in teaching	.513	.000**	
I have adequate time to conduct research projects.	.739	.000**	
I have a high degree of autonomy into how I wish to spend my time within each of my faculty roles.	.693	.000**	
Teaching workload			.718
I feel that I have such a heavy teaching load that it takes up my time to conduct research.	.800	.000**	

Variables and indicators	Validity		Reliability
	Pearson Correlation	Sig (2-tailed)	Cronbac's Alpha
My department faculty is heavily engaged in teaching than research.	.878	.000**	
I think teaching keeps me away from research.	.834	.000**	
I think teaching and research should support each other.	.145	.030*	
My department/university expects faculty involvement more in teaching than in research.	.747	.000**	
Supporting resources			.843
The university provides enough budget for conducting research.	.635	.000**	
The university provides enough services of the editor/grammarian.	.761	.000**	
The university provides enough statistical services.	.799	.000**	
The university offers more or improved office space or facilities for conducting a research paper.	.709	.000**	
The university provides reliable internet access for conducting a research paper.	.660	.000**	
The university provides access to online journals for conducting a research paper.	.762	.000**	
The university provides an information system that records the results of research and publications of lecturers.	.697	.000**	
Training			
The university provides sufficient in-house and outside trainings to enhance my research competencies	.860	.000**	
The university provides training in writing scientific publications.	.901	.000**	
The university provides training on research methods.	.905	.000**	
The university provides training on the use of statistical tools.	.837	.000**	
Publication performance			.694
In one year, at least I do one research	.741	.000**	
In one year, I produce at least one article published in a national scientific journal.	.839	.000**	
In one year, I produce at least one article published in an international scientific journal.	.773	.000**	

**Significant at 0.01 level (2-tailed)

* Significant at 0.05 level (2-tailed)

3.2 Multiple Linear Regression Analysis

This study has collected data from 226 respondents. The characteristics of respondents as presented in Table 3. Using multiple linear regression, present study used α of .05 or a 95% confidence level. Referring to this limitation, the p value $\leq .05$ indicates that the independent variable in the model has a significant effect on the dependent variable (public performance). For more details, the results of the multiple linear regression test are presented in Table 4.

Table 3. Respondents' characteristic

Characteristics	Category	Total (n)	Percentage (%)
Sex	Male	81	35,8
	Female	145	64,2
Academic position	Assistant lecturer	113	50
	Lecturer	87	38,5
	Associate professor	23	10,33
	Professor	3	1,33
Age	<41 years old	98	43,36
	41-50 years old	78	34,51
	51-60 years old	44	19,47
	>60 years old	6	2,655

Based on the results in Table 4., it can be seen that altogether the five independent variables, namely motivation, self-efficacy, research skills, research time, and training have a positive and significant effect on publication performance (significance value at $<.05$). In other words, hypothesis 1, hypothesis 2, hypothesis 3, hypothesis 4, and hypothesis 7 are acceptable. Variable that has the greatest effect is self-efficacy, while the smallest effect is motivation. The teaching workload variable has a negative beta coefficient and a significance value below $.05$, which means that the teaching workload has a negative effect on publication performance, or that hypothesis 5 is acceptable. This indicates that excessive teaching workload will reduce the performance of scientific research and publications. Meanwhile, one independent variable, namely supporting resources, shows a value of $.317$ ($>.05$), which means that supporting resources does not have a significant effect on the performance of research and scientific publications and which also means that hypothesis 6 is rejected.

Table 4. Multiple Linear Regression Analysis Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. error	Beta		
(Constant)	-24.069	6.059		-3.973	.000
Motivation	.203	.068	.147	2.966	.003
Self-efficacy	.455	.066	.352	6.859	.000
Research skills	.361	.072	.245	4.995	.000
Research time	.181	.050	.165	3.589	.000
Teaching workload	-.082	.039	-.088	-2.119	.035
Supporting resources	.048	.048	.055	1.003	.317
Training	.149	.042	.200	3.552	.000

The effect of the independent variables on the dependent variable together can be viewed from the F test value. The results of this study indicate that the F value is 54.244 with a significance level of $.000$. Thus, it can be interpreted that the variables of motivation, self-efficacy, research skills, research time, teaching workload, and training together have a significant effect on publication performance.

The amount of variation of the independent variable that can explain the dependent variable can be seen from the coefficient of determination (adjusted R^2): In this study, an *adjusted* R^2 value of 0.624 was obtained. This means that 62.4% of publication performance is influenced by motivation, self-efficacy, research skills, research time, teaching workload, and training, while the

remaining 37.6% of publication performance correlates to other variables which are not covered in this research.

The results of this study indicate that motivation has a positive and significant effect on the performance of scientific publications. This result supports the finding in studies by Agah et al., (2020) and Chen et al., (2006) which shows that intrinsic motivation and extrinsic motivation have an influence on lecturers to improve their performance in scientific research and publications. Both types of motivation can both drive behavior improvement because this variable is determined by a complex interaction between internal and external factors (Hattie et al., 2020). These factors are interrelated and further increase the complexity of the motivation that forms the basis of various activities involved in scientific publications (Payakachat et al., 2021). When an external motivational influence is found, it means that the institution has an important role to play in encouraging lecturers to research and publish their scientific papers.

Self-efficacy is the second variable found to have an effect on the performance of scientific publications. This result supports the research of Callaghan (2015), Hemmings and Kay (2010a), Hemmings and Kay (2010b), and Garnasih (2017). Garnasih (2017) which states that people with high self-efficacy perceive a problem as a challenge, are very committed to the activities they do, invest a lot of time and energy in their activities, think strategically to solve problems, can easily rise from failure or difficulty, and are able to control stress. In other words, lecturers with high research self-efficacy will produce scientific papers with high quantity and quality as a manifestation of their commitment and abilities.

A study by Hemmings and Kay (2010a) shows that low self-efficacy is found in lecturers at the beginning of a career due to pressure from several other factors, such as teaching workload, pressure from seniors, probationary period, performance demands, and job security. Self-efficacy is formed from rich experiences and persuasion from other individuals. For this reason, support from senior lecturers is needed to improve research skills in order to increase the self-efficacy of junior lecturers. In this case, there is also a need for a role from the institution to encourage lecturers to collaborate with each other so that junior lecturers have the opportunity to gain experience and increase their confidence. Hemmings and Kay (2010b) emphasize the need for activities to increase the self-efficacy of lecturers at the beginning of their career, such as attending scientific conferences, presenting articles at scientific conferences, and collaborating with colleagues.

In addition to motivation and self-efficacy, research skills are also found to have an effect on the performance of scientific publications. The results of this study support the research results of Angaiz (2015) and Lodhi (2011), which agree that the lack of research skills is one of the reasons for the low publication performance of lecturers. Lodhi (2011) found that a lack of research skills contributes to negative attitudes that hinder research performance, can be exacerbated by the lack of resources provided by the institution. Angaiz (2015) found that lecturers who are actively researching and publishing scientific papers are recognized as lecturers with extensive knowledge in their field of research. The skills referred to here are not only skills in conducting research, but also skills in publishing the results of the research.

The time devoted by lecturers for their research is found to have an effect on the performance of scientific publications. This result reinforces the findings in studies by Bentley and Kyvik (2013) and Webber (2011). Bentley and Kyvik (2013) found that the time spent by lecturers in research activities has a positive and significant effect on the scientific publications produced. The results of this study also indicate that lecturers with stronger internal encouragement to conduct research will have the ability to manage time, so that research activities can be carried out properly. Research by Alghanim and Alhamali (2011) and Fawzi and Al-Hattami (2017) found

that being busy teaching and carrying out administrative activities are the prevalent reasons for the lack of time devoted to research. However, these obstacles cannot be avoided, because besides researching the main task of the lecturer is to provide classical instruction and carry out community service activities. Research time is a prerequisite for developing research competence, therefore lecturers must have a strong individual desire to conduct research as a manifestation of their commitment to carry out their main obligations.

This study succeeded in proving that teaching workload has a negative and significant effect on the performance of scientific publications. This study found that the greater the teaching workload, the less the involvement of lecturers in scientific research activities. This result reinforces the findings in studies by Jung (2012) and Angaiz (2015). Jung (2012) reports that intensive teaching workload reduces the output of scientific publications. This is because the time needed to teach not only includes the time needed in class, but also includes teaching preparation. A busy teaching schedule cannot be avoided by lecturers due to demands from the institution. On the other hand, the current demands on universities to produce research also adds an additional workload for lecturers. The balance between the teaching and research workload assigned to the lecturer is the main key that will support the quality of these two activities.

The last variable that correlates with the performance of scientific publications is training. This result reinforces the findings in studies by Fawzi and Al-Hattami (2017) and Alghanim and Alhamali (2011). Both studies indicate that lecturers who have the opportunity to receive research methods training have better abilities than those who have not. In turn, the lecturers who received the training also produce better scientific publications. Training is a part of practice in the development of employees (Hameed and Abdul, 2011). Employee development basically means developing individual abilities related to the performance of employee duties to achieve the best performance. In turn, employee development will result in organizational development as a way for the organization to achieve its best performance.

Rohmah et al. (2016) emphasized that training is one of the supporting factors in the strategy to increase the ability of lecturers in producing scientific work. In the training process, the better a trainer provides motivation and understanding of research, the higher the ability of trained lecturers to carry out research. Thus, lecturers will be encouraged to learn more. To develop this ability, several ways can be done, including attending seminars, workshops and other training sessions, held both in-house and by outside parties. This of course will lead to employee development, and development will increase performance.

Supporting resources is the only variable that does not correlate to the performance of scientific publications. This finding is in line with research findings by Naikote and Bakkabulindi (2011), which state that the resources provided by the institution do not correlate with lecturer productivity. A study by Lunyolo and Bakkabulindi (2017) revealed that the facilities provided by the university (including research grants) which do not cover the results will not affect the performance of scientific publications of lecturers. In several previous studies, it has been proven that many institutions in developing countries cannot provide sufficient resources for lecturers to conduct their research. However, contradictory findings were also reported in a study by Iqbal and Mahmood (2011) in Pakistan, which stated that a lack of resources (recent books, journals, and research grants) was the cause of low scientific publication outcomes. Likewise, a study by Nguyen (2015) in Vietnam found that a lack of scientific literature, research grant funds, and research infrastructure was the cause of the low output of scientific publications from lecturers.

This study took a sample of private university lecturers in Jakarta with a very diverse institution range, from institution accredited "A" to "C", with 57 (25.22%) from "A" accredited institutions, 147 (65.04%) from "B" accredited institutions, and 22 (9.735%) from "C" accredited

institutions. Each institution has its own policies regarding the provision of supporting resources for lecturer research. Some institutions are able to provide sufficient funding for research activities, whereas others cannot provide adequate funds. The problem arises in institutions that are able to provide funding, which is a fairly strict requirement for lecturers who receive research grants, for example, they must be able to publish 3 journals indexed by Scopus. This requirement is considered quite limiting, especially for junior lecturers. A problem that is also often encountered is that there are only a few lecturers who manage to get research funding, because they are the only ones with the skills and who meet the administrative requirements (such as a minimum functional position) to receive research grants. This is one of the reasons that the resources provided by institutions are found to have no significant effect on the performance of scientific publications.

4. Conclusions

This study provides strong empirical evidence that the publication performance of private university lecturers is influenced by individual factors and institutional factors. This means that the ability of lecturers to publish their scientific papers does not only depend on internal factors that come from within each lecturer, but also on institutional support. This study proves that motivation, self-efficacy, research skills, research time, teaching workload, and training have a positive and significant effect on increasing scientific publications. In this case, to improve the performance of lecturers' publications, it is necessary to have support from institutions that strengthen the implementation of these influencing factors. Institutions can provide stimuli that can increase motivation, such as sufficient rewards for publication results and the growth of lecturer's confidence to conduct scientific publications. In addition, institutional support so that lecturers can take the time to carry out scientific publications must be carried out continuously so that lecturers realize the importance of scientific publication output for themselves and for the institution. Institutional support in the form of adjusting teaching workloads and providing training will encourage lecturers to improve the performance of scientific publications. Provision of supporting resources such as research grants, current literature, internet networks, and other supporting facilities will have an impact if given in an adequate capacity.

This research has limitations, among others, it was conducted on private universities in Jakarta. Although it is expected to represent the overall picture of private universities in Indonesia, it should also be noted that there is a considerable gap between private universities in Jakarta and private universities in other regions, especially in remote areas. A more complete picture can be obtained with further research which is expected to use private universities samples that more accurately represent the reality on all regions in Indonesia. In addition, this study uses eight independent variables based on previous studies to analyze their correlation to the performance of scientific publications. However, there are several other variables that also support the performance of scientific publications which are interrelated with one another. For this reason, further research can use a systematic approach in order to obtain a comprehensive analysis of how the performance of scientific publications of private university lecturers.

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