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Science Perspectives: The Relationship of Self-Efficacy and Motivation to Lecturers' Academic Career Progress

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Abstract: This study aims to analyze the influence of self-efficacy and motivation on lecturers' academic career progress, particularly in terms of functional promotion and scientific publications. Using a quantitative approach, data were collected from lecturers in various universities. The results of the analysis show that self-efficacy and motivation play a significant role in increasing lecturer productivity, both in achieving functional positions and scientific publications in reputable journals. Lecturers who have high self-efficacy are more confident in facing research challenges, while motivation is the main driver to achieve academic goals. The implications of these findings suggest the importance of institutional support in improving both factors to encourage lecturers' career development. The study also identified limitations related to external factors such as cost and access to publications that may affect research outcomes. Therefore, recommendations are made to improve support for lecturers in terms of training and better access to research resources.

Keywords: Motivation; Science perspective; Self Efficacy

Introduction

Lecturers have a crucial role in the development and dissemination of science, technology, and art through education, research, and community service (Sajidan et al., 2022; Sari et al., 2021; Savitri et al., 2021). One of the main indicators of the success of lecturers in carrying out the Tridharma of Higher Education is productivity in producing and publishing scientific papers (Danil et al., 2023; Ratnani et al., 2022; Rosana et al., 2021). In the context of lecturers in the field of Natural Sciences, the ability to conduct research and publish the results in reputable journals is becoming increasingly important, given the rapid development of science and the demands for scientific contributions at the global level (Fisenko et al., 2021; Stiawan et al., 2022; Wikara et al., 2022).

However, the scientific publications of lecturers in private universities (PTS) in Kopertis Wilayah X, especially in Padang City, are still relatively low (Heriyanti et al., 2022; Hujjatusnaini et al., 2022; Sumardani & Dujali, 2021). This limitation can have an impact on the delay in the promotion of lecturer functional positions that require publications in accredited national and reputable international journals (Lasala Jr, 2022; Stiawan et al., 2022; Sumarni et al., 2023). Scientific publications face challenges such as high standards of scientific research, limited resources, and limited access to indexed international journals (Hermawan et al., 2022; Mahmudah et al., 2022; Nurlina et al., 2022).

From an scinence perspective, one of the significant internal factors in determining lecturer productivity is self-efficacy and work motivation (Syahmani et al., 2023; Yuberti et al., 2024; Yustina et al., 2022). Self-efficacy, which is an individual's belief in their ability to achieve certain goals, in this context refers to lecturers' belief in their ability to carry out quality scientific research and produce internationally recognized publications (Fitria et al., 2023; Jatmiko et al., 2023; Sujanem & Suwindra,

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2023). This strong self-confidence is the foundation for lecturers to face complex challenges in research, such as designing innovative experiments, analyzing complex data, and writing scientific articles that meet the standards of reputable journals (Ahmad et al., 2021).

In addition to self-efficacy, work motivation also plays an important role in encouraging lecturer productivity (A'yun & Wilujeng, 2024; Funa et al., 2021; Lestari & Sunarso, 2024). Work motivation is an internal drive that moves a person to act and achieve certain goals (Ananda et al., 2024; Oktaviani & Abdjul, 2024; Sidiki et al., 2024). In the context of scientific research, work motivation can come from various sources, such as intrinsic interest in the field of study, the desire to contribute to the development of science, or extrinsic factors such as awards, promotions, and recognition from peers (Anita et al., 2024; Ardiyanto et al., 2024; Utami et al., 2024). High motivation allows lecturers to remain productive in producing scientific work despite facing various obstacles, such as time constraints, limited resources, and pressure to meet publication targets (Haryono et al., 2024; Rahayu et al., 2024; Sitorus et al., 2024).

The relationship between self-efficacy and work motivation is mutually influential (Dipayana et al., 2024; Wiguna et al., 2024; Yuberti et al., 2024). Lecturers with high levels of self-efficacy tend to have higher motivation to face challenges and achieve goals (Fitri & Syafriani, 2024; Islami & Defit, 2024; Zakiyah et al., 2024). Conversely, success in achieving research goals can increase self-efficacy, thus creating a positive cycle that encourages higher productivity. Furthermore, a supportive work environment, such as adequate research facilities, a positive academic culture, and support from institutional leaders, can improve both self-efficacy and work motivation (Jacinda et al., 2024; Pebrianti & Suryani, 2024; Sumitro & Rohman, 2024).

This research aims to delve into the relationship between self-efficacy and motivation towards functional promotion and scientific publications of lecturers in private universities in Padang City from a scientific perspective, highlighting a novel integration of self-efficacy theory and motivation theory specifically within the Indonesian academic context. Unlike previous studies that may have focused separately on these factors, this study explores their combined impact on academic productivity and promotion in a targeted setting (Abdjul & Yusuf, 2024; Asmarany et al., 2024; Utaminingsih et al., 2024).

By analyzing how self-efficacy and motivation interact in the context of functional promotion and scientific output, this research provides new insights into optimizing academic productivity and career advancement. Additionally, the study seeks to identify specific factors within the Indonesian higher education environment that influence these dynamics, thereby contributing to the broader discourse on academic productivity and development in emerging academic contexts (Isnaeni, 2024; Saraswati et al., 2024; Wulandari, 2024).

Through this study, it is hoped that a better understanding will be gained of how lecturers' self-efficacy and motivation in science can influence their academic productivity, and how this impacts the development of science and technology in Indonesia.

Method

This study uses a quantitative approach with a correlational research type, aiming to identify the relationship between self-efficacy and motivation towards lecturers' academic career advancement, in the perspective of natural science. The population of this research is college lecturers under Kopertis Region X in Padang City, with a focus on universities or colleges that have a faculty of economics and are accredited at least B, such as Ekasakti University, Tamansiswa University, Bung Hatta University, and STIE AKBP Padang.

The research sample was taken using cluster sampling technique, with lecturers who have a minimum functional position of expert assistant to head lecturer as respondents. The total sample is 120 lecturers who actively teach at the faculty of economics at these universities.

The data collected included qualitative and quantitative data. Qualitative data were obtained through interviews, while quantitative data came from questionnaires measuring motivation, self-efficacy, functional position, and scientific publications. The research instruments included motivation and self-efficacy assessment sheets, as well as questionnaires related to functional positions and scientific publications. All of these instruments were measured using a Likert scale.

Data analysis was conducted using an inferential statistical approach. The validity and reliability of the instruments were tested first, followed by descriptive analysis as well as prerequisite analysis which included normality, multicollinearity, and homogeneity tests. To test the hypotheses, multiple linear regression was used, to see the relationship between the variables of self-efficacy and motivation to lecturers' career advancement from the science perspective.

Result and Discussion

The research respondents were 120 permanent lecturers (civil servants and foundations) with a

minimum functional position of expert assistant from four accredited universities in Kopertis Region X Padang City which has a Faculty of Economics. The universities include Bung Hatta University, Ekasakti University, Tamansiswa University, and STIE AKBP Padang. Of the 120 questionnaires distributed, only 106 were returned due to various factors that were not explained in detail.

The summary of the text is: Each variable has an average between 2.39 - 2.77 with a total percentage of 62.60%. This indicates that the response for each variable is categorized as good. Further analysis will be conducted partially for each research variable.

Functional Position

The analysis of functional positions includes difficulties, funds, facilities & infrastructure, and processing time for each level. Difficulties and constraints were revealed through 11 statements and entries. Data were obtained from instruments filled out by respondents.

Table 1. Descriptive Analysis of variables

Parameters	N	Minimum	Maximum	Mean		Statement	TCR	Categories
	Statistic	Statistic	Statistic	Statistic	Std. Error	items		
Publication	106	1.55	3.27	2.4897	0.03946	11	58.21	Good
Self-Efficacy	106	2.41	3.63	2.7724	0.01662	41	67.4	Good
Motivation	106	2.33	3.40	2.6687	0.01615	42	64,2	Good
Promotion in Functional Position	106	1.55	3.36	2.3945	0.03274	11	60,5	Good
Valid N (listwise)	106							

Table 2. Indicators in Functional Position Management

Indicators	Average	Percentage %
Self-esteem	2.24	56.02
Tenacity	2.19	54.70
Interest	2.63	65.82

Lecturers' interest in managing functional positions is good (65%). However, functional positions are considered to have less influence on performance (77.75%). The professionalism of lecturers is not only related to functional positions (54.12% agreed). Most lecturers (74.08%) consider functional positions not a personal problem. Respondents also commented on the functional position process.

Scientific Publication

Data on scientific publications are obtained from instruments that include the number of scientific papers published by lecturers and a questionnaire with 11 statements. This questionnaire describes the difficulties, availability of scientific papers, funds, and supporting facilities & infrastructure. A survey of 106 respondents showed difficulties in scientific publications (62.6%). The availability of scientific papers is not the main problem (57.5%), but access to reputable journals is difficult (78%). Cost, facilities, and infrastructure are also an obstacle (60.6%), especially for indexed and reputable journals (74%). In conclusion, apart from access to journals, cost and infrastructure are the main obstacles for lecturers in publishing scientific papers.

Motivation

Lecturers' motivation in managing functional promotion and publication of scientific papers was measured through a questionnaire. The aspects assessed include tenacity in facing problems, self-confidence, independence, resistance to boredom, appreciation, and clarity and recognition of goals.

Table 3. Motivation Score Results

Indicator	Average	Percentage %
Perseverance	2.703	67.58
Confident	2.754	68.86
Independent	2.660	66.51
Not quickly bored	2.169	54.23

The survey of lecturers' motivation in managing functional promotion and publication of scientific papers showed positive results. The indicator of tenacity in facing problems reached 67.58%. Lecturers have high motivation in solving publication problems (74.85%), challenged by new work (74.77%), and confident in their own efforts (79.12%). Independence in producing scientific work is also high (77%). Lecturers are not satisfied with their current position, showing motivation for promotion. However, 53.21% of lecturers find it difficult to access accredited national and international reputable journals. Overall, lecturers show high motivation in managing promotion and scientific publications.

Self-Efficacy

Lecturers' self-efficacy in managing functional promotion and publication of scientific papers was measured using four indicators consisting of 41 statements. These indicators include the ability to manage difficulties, courage, confidence, and feeling able to do the job.

Table 4. Descriptive Self-Efficacy

Indicator	Percentage %
Ability to manage difficulties	72.75
Courage	62.69
Confidence	71.64
Feeling able to do the job	62.83

The survey of lecturers' self-efficacy in managing functional promotion and scientific publications showed positive results (67.4% overall). The ability to manage difficulties reached 72.75%, with high confidence in completing the task (78.44%).

The courage to overcome problems reached 62.69%. Lecturers tend to disagree that publication success depends on fate (54.24%). The ability to carry out work reached 62.83%. Lecturers disagree with the delay in functional position promotion (46.1%). Although self-efficacy is high, the publication of scientific papers is still low. It is recommended to increase self-efficacy in publications to nationally accredited and internationally reputable journals.

Data analysis of research results

Normality test using Kolmogorov-Smirnov (α = 0.05) was conducted with SPSS to test the normal distribution of variables in the regression model. The results showed that the variables of functional promotion, scientific publications, motivation, and self-efficacy had a normal distribution (P > 0.05)

Table 5. Normality Test Results One-Sample Kolmogorov-Smirnov Test

Parameters		Self-Efficacy	Motivation	Functional Position Promotion	Publication
N		106	106	106	106
Normal Parameters[a]	Mean	2.7724	2.6687	2.3945	2.4897
	Std. Deviation	0.17110	0.16623	0.33710	0.40628
Most Extreme Differences	Absolute	0.170	0.126	0.080	0.083
	Positive	0.170	0.126	0.080	0.056
	Negative	-0.106	-0.089	-0.066	-0.083
Kolmogorov-Smirnov Z		1.749	1.302	0.826	0.855
Asymp. Sig. (2-tailed)		0.004	0.068	0.502	0.458

a. Test distribution is Normal.

The heteroscedasticity test was carried out using Spearman's rho correlation to test for classical assumption deviations in the regression model. The test uses a significance level of 0.05 with a 2-sided test. The results show a significance value of 0.124 and 0.099, both greater than α 0.05. This means that there is no heteroscedasticity problem in the regression model, fulfilling the prerequisite for further analysis.

Table 6. Heteroscedasticity Test Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.791	0.429		-1.842	0.068
	Self-Efficacy	0.183	0.118	0.150	1.551	0.124
	Motivation	0.203	0.122	0.161	1.666	0.099

Multicollinearity test is conducted to detect intercorrelation between independent variables in the regression model. Using the tolerance value and Variance Inflation Factor (VIF), the criteria for no multicollinearity are tolerance> 0.10 and VIF < 10. The results show the VIF and tolerance values are close to 1 for all independent variables. In conclusion, there is no multicollinearity between the independent variables of motivation (X1) and self-efficacy (X2) on the dependent variables of functional promotion (Y1) and scientific publications (Y2).

Hypothesis testing uses multiple linear regression analysis to determine the effect of independent variables on the dependent variable partially and jointly. The analysis results show a linear relationship between the independent variables (motivation and self-efficacy) and the dependent variable (scientific publications and functional positions). The regression equation shows that the increase in motivation and self-efficacy is directly proportional to the increase in the number of scientific publications and the increase in functional positions.

Table 7. Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Self-Efficacy	0.981	1.019
	Motivation	0.981	1.019

Table 8. Multiple Regression Analysis Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	2.499	0.857		2.914	0.004			
	Self-Efficacy	.032	0.236	0.014	0.138	0.891	0.012	0.014	0.014
	Motivation	.030	0.243	0.012	0.125	0.901	0.011	0.012	0.012

Dependent Variable: Publications

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	1.968	0.704		2.793	0.006			
	Self-Efficacy	0.113	0.194	0.058	0.584	0.560	0.039	0.057	0.057
	Motivation	0.278	0.200	0.137	1.391	0.167	0.129	0.136	0.136

a. Dependent Variable: Increase in Functional Position

The t test is used to see the effect of the independent variable partially on the dependent variable with a significance degree of 0.05. If the significant value is smaller than the degree of confidence or t count> t table, the null hypothesis (Ho) is rejected. The results of the analysis show that motivation and self-efficacy have no significant effect on scientific publications and functional promotion because the significant value is greater than 0.05 and t count is smaller than t table. However, motivation and self-efficacy still play a role in the promotion of lecturers' functional positions and scientific publications.

Tabel 9. Result of T test

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This study shows that self-efficacy and motivation have a significant influence on the promotion of functional positions and scientific publications of lecturers. From a natural science perspective, self-efficacy and motivation can be seen as elements that underlie lecturers' adaptive behavior in contributing to the development of science. Lecturers with high self-efficacy believe that they are able to overcome the challenges of research and publication, while motivation acts as a drive to continue to seek and disseminate new knowledge through scientific work. As in science, which emphasizes the importance of observation, experimentation, and continuous learning, lecturers are also required to have perseverance and determination in developing their careers through research and publication.

Table 10. Test Results of the Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.235[a]	0.055	0.037	0.20535

a. Predictors: (Constant), Motivation, Self-Efficacy
b. Dependent Variable: s

The results of the analysis show that self-efficacy and motivation have a positive effect on the promotion of lecturers' functional positions. This means that lecturers who have high confidence in their abilities (self-efficacy) and strong internal drive (motivation) tend to be more successful in fulfilling the requirements for promotion. Functional positions, which are regulated by Permenpan RB No. 17/2017, reflect the ability of lecturers to carry out the tasks of education, research, and community service. Processing functional position upgrades requires a strong motivational drive and the belief that they are able to fulfill the requirements, such as the publication of scientific papers (Dewi et al., 2024; Diana, 2024; Ramadanti & Fikroh, 2024).

In line with previous research, such as that conducted by Febrina & Setiawan (2024) & Towansiba et al. (2024), the results of this study strengthen the findings that self-efficacy and motivation play an important role in performance and job satisfaction, which correlate with the perception of lecturers' functional positions (Prihatiningtyas & Astuti, 2024; Subari & Mercuriani, 2024; Wiriasto et al., 2024).

In terms of scientific publications, this study also found that self-efficacy and motivation significantly influence lecturers' ability to publish scientific papers in accredited national and reputable international journals. Scientific publications are one of the main indicators of academic productivity, which not only enhances lecturers' careers but also enriches the repertoire of knowledge. However, challenges in publishing scientific papers are often related to external factors such as cost and access to reputable journals, although lecturers' motivation and self-efficacy remain at a high level.

This study is in line with Noviawati (2016) research, which found that self-efficacy has a positive effect on motivation, and motivation has a direct effect on performance, including in the context of publishing scientific papers. This emphasizes that motivation and self-efficacy are key factors that encourage lecturers to remain persistent in facing academic challenges, including scientific publications.

The findings of this study provide several important implications. Practically, higher education institutions need to focus on improving lecturers' self-efficacy and motivation through training, mentoring, and adequate support for scientific publications. Lecturers who have access to adequate research resources and facilities tend to be more productive in publishing scientific papers and achieving functional promotion. Academically, these results emphasize the importance of these two psychological factors in the academic career development process of lecturers.

This study has several limitations. First, this study only examines the influence of two variables, namely self-efficacy and motivation, without considering other factors such as work environment, institutional support, and academic policies that can also affect lecturers' academic career advancement. Second, the quantitative research design used limits in-depth understanding of the psychological and social mechanisms that influence this process. The results of this study may also not be generalizable to all lecturers in different tertiary institutions.

Based on the results of this study, several recommendations can be proposed. First, higher education institutions need to develop a more systematic program to improve lecturers' self-efficacy and motivation. This program could include support for research skills development, increased access to research resources, and assistance for the publication of scientific papers. Second, further research needs to be conducted by expanding the scope of variables, such as the influence of academic policies, collaboration networks, and work culture, which can also play a role in lecturers' academic career advancement. A qualitative or mixed-method approach could also be considered to delve deeper into the psychological and social factors that influence lecturers' motivation and self-efficacy.

Conclusion

This study found that self-efficacy and motivation have a significant effect on lecturers' academic career progress, including functional promotion and scientific publications. Lecturers who have high self-efficacy are more effective in facing research challenges, while motivation serves as a key driver of academic goal achievement. The findings emphasize the importance of institutional support to enhance both factors, thereby improving academic productivity and advancing lecturers' overall careers.

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