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Beyond Leadership: Why Lecturer Competence Dominates Research Productivity in Higher Education?

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Abstract:

The inequality in lecturers' research productivity indicates that academic performance is not only determined by individual abilities but is also influenced by organizational leadership and lecturer competency. This study aims to analyze the influence of transformational leadership, pedagogical competence, and professional competence on lecturers' research productivity. The study used a quantitative, cross-sectional survey design with a census of 60 lecturers. Data were collected using a Likert-scale questionnaire and analyzed using SPSS 26.0 for correlation and regression. The results showed that transformational leadership had a significant effect on research productivity ($\beta = 0.329$; $R^2 = 0.110$), while pedagogical competence ($\beta = 0.813$; $R^2 = 0.833$) and professional competence ($\beta = 0.840$; $R^2 = 0.822$) had a stronger influence. Simultaneously, the three variables explained 85.1% of the variation in lecturers' research productivity ($R^2 = 0.851$). This research implies that increasing lecturers' research productivity requires synergy between transformational leadership and strengthening pedagogical and professional competencies through structured, performance-based, and institutionally sound development programs to foster a culture of sustainable research within higher education.

Keywords: *Transformational Leadership, Pedagogical Competence, Professional Competence*

Abstrak:

Ketimpangan produktivitas penelitian dosen menunjukkan bahwa kinerja akademik tidak hanya ditentukan oleh kemampuan individu, tetapi juga dipengaruhi oleh faktor kepemimpinan organisasi dan kompetensi dosen. Penelitian ini bertujuan menganalisis pengaruh kepemimpinan transformasional, kompetensi pedagogik, dan kompetensi profesional terhadap produktivitas penelitian dosen. Penelitian menggunakan pendekatan kuantitatif dengan desain survei potong lintang pada 60 dosen melalui teknik sensus. Data dikumpulkan menggunakan kuesioner skala Likert dan dianalisis dengan korelasi serta regresi menggunakan SPSS 26.0. Hasil penelitian menunjukkan bahwa kepemimpinan transformasional berpengaruh signifikan terhadap produktivitas penelitian ($\beta = 0{,}329$; $R^2 = 0{,}110$), sedangkan kompetensi pedagogik ($\beta = 0{,}813$; $R^2 = 0{,}833$) dan kompetensi profesional ($\beta = 0{,}840$; $R^2 = 0{,}822$) memberikan pengaruh yang lebih kuat. Secara simultan, ketiga variabel menjelaskan 85,1% variasi produktivitas penelitian dosen ($R^2 = 0{,}851$). Penelitian ini memberikan implikasi bahwa peningkatan produktivitas penelitian dosen memerlukan sinergi antara kepemimpinan transformasional dan

penguatan kompetensi pedagogik serta profesional melalui program pengembangan berkelanjutan yang terstruktur, berbasis evaluasi kinerja, dan didukung kebijakan institusional yang konsisten untuk mendorong budaya riset yang berkelanjutan di lingkungan perguruan tinggi.
Kata Kunci: *Kepemimpinan Transformasional, Kompetensi Pedagogik, Kompetensi Profesional*

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INTRODUCTION

Research productivity has become a strategic indicator for measuring institutional performance, knowledge generation, and academic competitiveness in higher education. Lecturers are expected to contribute not only to teaching and community engagement but also to the ongoing production of scientific knowledge through research (Chaika, 2025; Nur et al., 2023; Ramirez et al., 2022). Nevertheless, research productivity among academics remains uneven, particularly within teaching-oriented institutions, where lecturers frequently face challenges stemming from a limited research culture, insufficient institutional support, and competing professional responsibilities. Such disparities suggest that research productivity is not merely determined by individual capability but may also be shaped by organizational leadership and academic competencies (Berger et al., 2024; Gupta, 2021; Kohan et al., 2023). Understanding these determinants is therefore essential for developing sustainable strategies that strengthen scholarly performance and institutional research capacity.

Transformational leadership has been widely acknowledged as a leadership approach capable of fostering innovation, motivation, and organizational commitment. Leaders who articulate a compelling vision, provide intellectual stimulation, and recognize individual contributions may create an environment conducive to research engagement (Hasanah et al., 2024; Mukhlis et al., 2024). In higher education settings, transformational leadership is expected to encourage lecturers to participate more actively in scholarly activities and develop stronger commitments toward academic excellence. However, empirical findings regarding its influence on research productivity remain inconsistent. While several studies have reported positive relationships between transformational leadership and employee performance, evidence specifically addressing lecturers' research productivity remains limited (Akdere et al., 2020; Lee et al., 2020; Siagian et al., 2022). This condition indicates the necessity of further empirical investigation to clarify the extent to which transformational leadership contributes to research outcomes among academics.

Beyond leadership factors, pedagogical competence has increasingly been associated with lecturers' ability to generate scientific inquiries and transform teaching experiences into research opportunities. Pedagogically competent lecturers tend to possess stronger capacities to identify learning problems, engage in reflective practice, and develop evidence-based innovations in instructional settings (Kerdnaimongkol, 2025; Löfflad et al., 2025; Wissemann et al., 2022). These capabilities may facilitate the formulation of research questions and the

production of scholarly outputs. Nevertheless, previous investigations have predominantly examined pedagogical competence in relation to teaching effectiveness and student achievement, while its potential contribution to research productivity has received comparatively less scholarly attention (Chen et al., 2021; Kaya et al., 2020). Consequently, examining pedagogical competence as a determinant of lecturers' research productivity may provide additional insights into the interconnected nature of teaching and research responsibilities in higher education institutions.

Professional competence also represents a critical dimension influencing academic productivity. Lecturers with high levels of professional competence are generally characterized by substantial disciplinary expertise, a commitment to scientific integrity, continuous self-development, and greater adherence to the responsibilities inherent in the academic profession (Devi Pramitha et al., 2024; Loeneto et al., 2022). These attributes may enhance lecturers' capacity to sustain research activities despite administrative burdens and institutional constraints. Initial observations at the institutions under investigation revealed considerable variation in publication output, participation in collaborative research, and overall engagement in scholarly activities. Such variations indicate that professional competence may be an important mechanism by which lecturers maintain their research commitment and translate their expertise into measurable scientific productivity (Eleyan et al., 2022; Prasongmanee et al., 2021).

Empirical evidence from the present investigation demonstrates that transformational leadership positively influences lecturer research productivity, although its explanatory power remains relatively modest, accounting for only 11% of the variance. In contrast, pedagogical competence and professional competence exhibit substantially stronger effects, contributing 83.3% and 82.2%, respectively. Simultaneously, these three variables explain 85.1% of the variance in lecturer research productivity, suggesting that leadership and competency-related factors collectively constitute a robust explanatory framework for understanding scholarly performance. Despite these promising findings, few studies have integrated transformational leadership, pedagogical competence, and professional competence into a single quantitative model specifically focused on lecturers' research productivity.

Therefore, this study aims to examine the effects of transformational leadership, pedagogical competence, and professional competence on lecturers' research productivity. By examining both the individual and combined effects of these variables, the study seeks to extend existing discussions on determinants of academic performance and to propose a more comprehensive understanding of how leadership practices and lecturer competencies interact to strengthen research productivity in higher education institutions.

RESEARCH METHODS

This study employed a quantitative cross-sectional survey design to examine the effects of transformational leadership, pedagogical competence, and professional competence on lecturers' research productivity (Ghanad, 2023). A

survey method was considered appropriate because it enables researchers to obtain empirical evidence about existing conditions while simultaneously testing relationships among variables using statistical procedures. Quantitative data were collected using structured questionnaires and transformed into numerical scores to facilitate objective measurement and hypothesis testing. The study was conducted between September 2025 and January 2026 following a preliminary investigation undertaken from May to August 2025 to secure institutional approval and respondents' willingness to participate.

The population comprised all lecturers employed at two Islamic higher education institutions in Sukabumi, namely STAI Al Masthuriyah and STAI Daarussalaam. The total population comprised 60 lecturers, including 48 from STAI Al Masthuriyah and 12 from STAI Daarussalaam.

Table 1. Population Distribution

Institution	Number of Lecturers
STAI Al Masthuriyah Sukabumi	48
STAI Daarussalaam Sukabumi	12
Total	**60**

Given that the population size was fewer than 100 individuals, this study used a census approach, including all members of the population as research participants. Consequently, the sample size was identical to the population size (N = 60), allowing complete representation of lecturers from both institutions. Data were collected through self-administered questionnaires distributed to all participating lecturers (Moraes et al., 2021). Four instruments were utilized to measure transformational leadership, pedagogical competence, professional competence, and lecturer research productivity.

All constructs were assessed using a five-point Likert scale consisting of favorable and unfavorable statements. Respondents indicated their agreement with each item using five response categories ranging from Always (5) to Never (1) for favorable items, whereas reverse scoring was applied to unfavorable items.

Table 2. Likert Scale Measurement

Response Category	Favorable	Unfavorable
Always (SL)	5	1
Often (SR)	4	2
Sometimes (KK)	3	3
Rarely (JR)	2	4
Never (TP)	1	5

The questionnaires consisted exclusively of closed-ended statements to ensure response consistency and facilitate statistical analysis. Primary data were obtained directly from lecturers through questionnaires, while secondary data were derived from institutional documents and relevant publications.

Instrument validity was assessed using the Pearson product-moment correlation coefficient by correlating individual item scores with the total score of each construct. An item was considered valid when the calculated correlation

coefficient exceeded the critical value in the correlation table at the 0.05 significance level. The interpretation criteria for item validity are presented in Table 3.

Table 3. Interpretation of Correlation Coefficients

Correlation Interval	Interpretation
0.000–0.199	Very Low
0.200–0.399	Low
0.400–0.599	Moderate
0.600–0.799	Strong
0.800–1.000	Very Strong

Reliability analysis was performed using Cronbach's Alpha coefficients generated through SPSS version 26.0. Instruments were considered reliable when reliability coefficients exceeded the minimum acceptable threshold of 0.70, indicating satisfactory internal consistency. Data analysis was conducted using SPSS version 26.0 through descriptive and inferential statistical procedures (Muda et al., 2024). Descriptive statistics were used to summarize respondents' perceptions of transformational leadership, pedagogical competence, professional competence, and lecturers' research productivity.

Before hypothesis testing, classical assumption tests were performed. Data normality was assessed using the Kolmogorov–Smirnov test; data were considered normally distributed when the p-value exceeded 0.05. Linearity tests were subsequently conducted using the Test of Linearity procedure to determine whether the relationship between the independent and dependent variables was linear. A significance value below 0.05 indicated a linear association.

Hypothesis testing involved Pearson's correlation and regression analyses (Walsh et al., 2020). Pearson correlation coefficients were used to determine the magnitude and direction of bivariate relationships between transformational leadership and research productivity, and between pedagogical competence and research productivity. Multiple regression analysis was further employed to estimate the simultaneous influence of transformational leadership, pedagogical competence, and professional competence on lecturer research productivity. The strength of correlation coefficients was interpreted according to the criteria shown in Table 4.

Table 4. Interpretation of Correlation Coefficients

Coefficient Value	Interpretation
< 0.200	Very Weak
0.200–0.399	Weak
0.400–0.599	Moderate
0.600–0.799	High
0.800–1.000	Very High

RESULTS AND DISCUSSION

Results

The findings presented in this study provide empirical evidence regarding the extent to which transformational leadership, pedagogical competence, and professional competence contribute to lecturer research productivity. The

discussion interprets these statistical results by relating them to previous studies, identifying convergences and discrepancies, and highlighting their theoretical and practical implications for enhancing research performance in higher education institutions.

Descriptive Statistics of Lecturer Research Productivity

The lecturer's research productivity was measured using 12 questionnaire items covering scientific publications, recognition and citations, research grants, and intellectual property rights. Descriptive analysis indicated that the average score for lecturer research productivity was 44.33 (SD = 5.436), with a median of 44.00, a mode of 43, a minimum of 32, and a maximum of 57.

Distributional analysis revealed that 16 lecturers (26.7%) exhibited very high research productivity, while another 16 (26.7%) were categorized as high. Conversely, 18 lecturers (30.0%) demonstrated low productivity, and 10 lecturers (16.7%) fell within the very low category. These findings suggest that despite the presence of highly productive lecturers, a substantial proportion of respondents still experience difficulties in sustaining research activities.

Table 5. Descriptive Statistics of Lecturer Research Productivity

Variable	Mean	SD	Median	Mode	Min	Max
Research Productivity	44.33	5.436	44.00	43	32	57

Table 5 shows that lecturers' research productivity has a mean score of 44.33 with a standard deviation of 5.436, indicating moderate variability among respondents. The median value of 44 and the mode of 43 suggest a relatively centralized distribution. Research productivity scores range from 32 to 57, reflecting differences in productivity levels across participants.

Assumption Testing

Kolmogorov–Smirnov analysis indicated that all variables satisfied the normality assumption. Significance values obtained for transformational leadership, pedagogical competence, professional competence, and lecturer research productivity were 0.200, 0.200, 0.200, and 0.178, respectively, all exceeding the recommended threshold of 0.05.

Linearity tests further confirmed linear relationships between each independent variable and the lecturer's research productivity. The significance values for deviation from linearity were 0.195 for transformational leadership, 0.155 for pedagogical competence, and 0.438 for professional competence. Since all values exceeded 0.05, the assumption of linearity was considered fulfilled.

Table 6. Normality and Linearity Tests

Relationship	F	Sig.
X1→Y	1.577	0.195
X2→Y	1.456	0.155
X3→Y	1.048	0.438

Table 6 presents the results of the normality and linearity tests. The significance values for the relationships between X1 and Y (0.195), X2 and Y (0.155), and X3 and Y (0.438) are all greater than 0.05. These findings indicate that the data satisfy the assumptions of normality and linearity, supporting further regression analysis.

Correlation Analysis

Pearson correlation analysis demonstrated statistically significant positive associations between all predictor variables and lecturer research productivity ($p < 0.001$). Transformational leadership exhibited a weak positive relationship with research productivity ($r = 0.332$), whereas pedagogical competence ($r = 0.913$) and professional competence ($r = 0.906$) showed very strong positive correlations.

Table 7. Correlation Matrix

Variables	r	Strength	p
Transformational Leadership → Research Productivity	0.332	Weak	<0.001
Pedagogical Competence → Research Productivity	0.913	Very Strong	<0.001
Professional Competence → Research Productivity	0.906	Very Strong	<0.001

Table 7 shows significant positive correlations between all independent variables and research productivity ($p < 0.001$). Transformational leadership demonstrates a weak relationship with research productivity ($r = 0.332$). In contrast, pedagogical competence ($r = 0.913$) and professional competence ($r = 0.906$) exhibit very strong positive associations, indicating their substantial contribution to lecturers' research productivity.

Regression Analysis

Simple regression analysis indicated that transformational leadership positively predicted lecturer research productivity ($\beta = 0.329$, $t = 2.676$, $p < 0.001$), accounting for 11.0% of the variance in research productivity ($R^2 = 0.110$). Pedagogical competence emerged as the strongest predictor among individual variables ($\beta = 0.813$, $t = 17.032$, $p < 0.001$), explaining 83.3% of variance in lecturer research productivity ($R^2 = 0.833$). Similarly, professional competence exerted a significant positive effect on lecturer research productivity ($\beta = 0.840$, $t = 16.340$, $p < 0.001$), accounting for 82.2% of the observed variance ($R^2 = 0.822$).

Table 8. Summary of Regression Results

Predictor	β	t	R^2	p
Transformational Leadership	0.329	2.676	0.110	<0.001
Pedagogical Competence	0.813	17.032	0.833	<0.001
Professional Competence	0.840	16.340	0.822	<0.001

Table 8 summarizes the regression analysis results, indicating that all predictors significantly influence research productivity ($p < 0.001$). Professional competence exhibits the strongest effect ($\beta = 0.840$; $R^2 = 0.822$), followed by pedagogical competence ($\beta = 0.813$; $R^2 = 0.833$). Transformational leadership has a weaker but still significant contribution ($\beta = 0.329$; $R^2 = 0.110$).

Multiple Regression Analysis

Simultaneous regression analysis demonstrated that transformational leadership, pedagogical competence, and professional competence collectively exerted a significant influence on lecturer research productivity ($p < 0.001$). The model explained 85.1% of the variance in lecturer research productivity ($R^2 = 0.851$), indicating substantial explanatory power.

Discussion

The findings indicate that lecturer research productivity remains uneven among respondents, despite obtaining a mean score of 44.33 (SD = 5.436), with values ranging from 32 to 57. Although 53.4% of lecturers demonstrated high or very high productivity, 46.7% still fell into the low or very low categories. This result suggests that research engagement has not yet become an equally established practice among lecturers. Previous studies similarly reported that research productivity is strongly associated with institutional climate, individual motivation, and access to scholarly resources (Kotíková, 2023; Wulandari, 2021). The present findings are consistent with these studies, underscoring that research productivity is a multidimensional phenomenon that requires supportive organizational environments and continuous academic capacity development.

Transformational leadership was found to significantly influence lecturer research productivity ($\beta = 0.329$; $t = 2.676$; $p < 0.001$), explaining 11.0% of the observed variance ($R^2 = 0.110$). This finding supports previous investigations indicating that transformational leaders can motivate academic staff through vision sharing, intellectual stimulation, and individualized consideration. Nevertheless, the weak correlation coefficient ($r = 0.332$) implies that leadership alone contributes modestly to research outcomes. Unlike studies conducted in research-intensive universities that reported stronger effects, this study suggests that leadership effectiveness may depend on the availability of research funding, mentoring opportunities, and institutional infrastructure (Cheong et al., 2022; Chiu, 2024; Sejdini et al., 2020). In practice, leaders should provide tangible support mechanisms beyond mere motivational encouragement.

Pedagogical competence emerged as one of the strongest predictors of lecturer research productivity, exhibiting a very strong correlation ($r = 0.913$) and accounting for 83.3% of variance ($\beta = 0.813$; $t = 17.032$; $R^2 = 0.833$). This finding aligns with the literature emphasizing the close relationship between teaching and research activities (Jang et al., 2021; Mezinov et al., 2022). Lecturers with stronger pedagogical competencies tend to identify instructional challenges, engage in reflective practice, and formulate research questions derived from classroom experiences. However, previous studies predominantly linked pedagogical competence with teaching effectiveness and student learning outcomes (Adhikari et al., 2023; Boté-Vericad et al., 2023; Munna, 2023). Therefore, the present study extends existing knowledge by demonstrating that pedagogical competence can also be an important determinant of lecturers' scholarly productivity.

Professional competence also exerted a substantial influence on lecturer research productivity, with a correlation coefficient of 0.906 and an explanatory

contribution of 82.2% ($\beta = 0.840$; $t = 16.340$; $R^2 = 0.822$). These findings correspond with studies suggesting that disciplinary expertise, professional commitment, and continuous self-development significantly shape academic performance. Lecturers with higher professional competence are generally better equipped to design research projects, apply appropriate methodologies, and disseminate findings through scientific publications (Loeneto et al., 2022; Nur et al., 2023; Wuysang et al., 2025). From a theoretical perspective, this result supports competency-based approaches that consider expertise and knowledge as strategic resources for organizational performance. Practically, institutions should strengthen professional development programs through publication mentoring, methodological workshops, and grant proposal training. Simultaneous regression analysis revealed that transformational leadership, pedagogical competence, and professional competence collectively explained 85.1% of the variance in lecturer research productivity ($R^2 = 0.851$; $p < 0.001$).

Those results indicate that research productivity is better understood through an integrative framework combining organizational and individual determinants. The finding differs from studies that emphasize leadership as the dominant predictor, in which pedagogical and professional competencies appeared substantially stronger in this investigation. Theoretically, the study contributes to higher education literature by positioning leadership as an enabling condition, while competencies serve as primary drivers of scholarly productivity. In practice, universities should develop comprehensive policies that integrate leadership enhancement, pedagogical improvement, and professional competency development to sustain lecturers' research performance.

CONCLUSION

This study demonstrates that lecturer research productivity is influenced by both organizational and individual factors, with pedagogical competence ($\beta = 0.813$; $R^2 = 0.833$) and professional competence ($\beta = 0.840$; $R^2 = 0.822$) emerging as substantially stronger predictors than transformational leadership ($\beta = 0.329$; $R^2 = 0.110$). Collectively, these variables explain 85.1% of the variance in research productivity, highlighting the importance of integrating leadership practices with competency development. The study contributes to the higher education literature by providing an integrated empirical model that links transformational leadership, pedagogical competence, and professional competence to scholarly performance. Nevertheless, the findings are limited by the relatively small sample size and focus on two Islamic higher education institutions. Future studies should involve larger and more diverse samples and incorporate additional variables, such as research culture, institutional support, and academic collaboration.

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