

Predictors of Achievement Motivation among Elementary School Teachers: Principal Leadership, Pedagogical Competence and Career Development

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Abstract: This study aimed to analyze the relationships between principal leadership, pedagogical competence, career development, and achievement motivation among public elementary school teachers in Pabelan District, Semarang Regency. This quantitative study employed an associative ex post facto design. The population consisted of 186 teachers from 21 public elementary schools. A total of 128 respondents were selected using proportionate stratified random sampling and simple random sampling. Data were collected through questionnaires and analyzed using multiple linear regression with IBM SPSS version 25. The results showed that principal leadership was positively associated with achievement motivation ($\beta = 0.177$; $p = 0.027$), pedagogical competence was positively associated with achievement motivation ($\beta = 0.434$; $p < 0.001$), and career development was positively associated with achievement motivation ($\beta = 0.312$; $p = 0.001$). The three predictors jointly predicted achievement motivation ($F = 120.571$; $p < 0.001$; $R^2 = 0.745$). Pedagogical competence was the strongest relative predictor. These findings highlight the importance of leadership support, competence development, and sustainable career development opportunities.

Keywords: principal leadership; pedagogical competence; career development; achievement motivation; elementary school teachers.

Abstract: Penelitian ini bertujuan menganalisis hubungan antara kepemimpinan kepala sekolah, kompetensi pedagogik, pengembangan karier, dan motivasi berprestasi guru SD Negeri di Kecamatan Pabelan Kabupaten Semarang. Penelitian ini menggunakan pendekatan kuantitatif dengan desain ex post facto asosiatif. Populasi penelitian berjumlah 186 guru dari 21 sekolah dasar negeri. Sebanyak 128 responden dipilih menggunakan teknik proportionate stratified random sampling dan simple random sampling. Data dikumpulkan melalui kuesioner dan dianalisis menggunakan regresi linier berganda dengan IBM SPSS versi 25. Hasil penelitian menunjukkan bahwa kepemimpinan kepala sekolah berhubungan positif dengan motivasi berprestasi ($\beta = 0,177$; $p = 0,027$), kompetensi pedagogik berhubungan positif dengan motivasi berprestasi ($\beta = 0,434$; $p < 0,001$), dan pengembangan karier berhubungan positif dengan motivasi berprestasi ($\beta = 0,312$; $p = 0,001$). Ketiga prediktor secara simultan memprediksi motivasi berprestasi ($F = 120,571$; $p < 0,001$; $R^2 = 0,745$). Kompetensi pedagogik menjadi prediktor relatif terkuat. Temuan ini menegaskan pentingnya kepemimpinan suportif, pengembangan kompetensi, dan peluang pengembangan karier berkelanjutan.

Kata kunci: kepemimpinan kepala sekolah; kompetensi pedagogik; pengembangan karier; motivasi berprestasi; guru sekolah dasar.

Introduction

Teachers are strategic human resources in education because they directly interact with students and significantly influence learning quality. School effectiveness depends not only on facilities, curriculum, and educational policies but also on teachers' ability to perform professional responsibilities consistently. Teachers are expected to design instruction, implement meaningful learning, assess outcomes, develop students' potential, and continuously improve their professional capacity. Therefore, teacher quality should be understood not only from the perspective of competence but also from psychological factors that encourage teachers to achieve higher professional standards.

One important psychological factor is achievement motivation, which reflects teachers' internal drive to achieve success and improve performance. Dickhäuser et al. (2021) found that school motivational climate, autonomy support, positive feedback, and collaboration are associated with teachers' achievement goal orientations. Kumari and Kumar (2023) showed that motivation contributes significantly to teacher performance, while recognition, supervision, training, professional development, and working conditions influence teachers' motivation. Fütterer et al. (2024) emphasized that teachers' engagement in professional development is influenced by program quality and motivation to learn. In Indonesia, Kholifah et al. (2024) identified motivation and professional development as important mechanisms underlying teacher performance, whereas Ulfah et al. (2024) highlighted the roles of managerial support, working conditions, motivation, and professional development.

Principal leadership represents an important organizational factor related to teachers' achievement motivation. Effective principals provide direction, support, professional learning opportunities, and a positive school environment. Yalçinkaya et al. (2021) found that principals' leadership styles and initiative behaviors are associated with teacher motivation. Liu et al. (2021) showed that instructional and distributed leadership are related to teacher self-efficacy and job satisfaction through supportive school culture and teacher collaboration. Tran et al. (2021) demonstrated the role of principals in developing professional-learning strategies. Bektaş et al. (2022) found that teacher motivation and trust in principals mediate the relationship between distributed leadership and professional learning. Meyer et al. (2022), Polatcan et al. (2023), Karakose et al. (2024), Đuranović et al. (2024), and Hallinger et al. (2025) further demonstrated that principal leadership is associated with teacher collaboration, self-efficacy, collective efficacy, commitment, and job satisfaction.

Besides leadership, pedagogical competence is a crucial professional factor related to teachers' achievement motivation. Pedagogical competence includes understanding student characteristics, mastering learning theories, developing curriculum, creating meaningful learning experiences, conducting assessment, and developing students' potential. Hastuti et al. (2022) showed that pedagogical competence can be improved through lesson planning, instructional-media development, teaching-material preparation, and assessment practices. Azizah et al. (2024) emphasized its importance in addressing diverse student needs. Hallinger et al. (2023), Meyer et al. (2023), Gouédard et al. (2023), and Fang and Qi (2023) also highlighted the relationships between professional learning, teacher self-efficacy, school climate, and professional practice.

Career development is another factor that may contribute to teachers' achievement motivation. Career development provides opportunities for competence improvement, professional recognition, continuous learning, and career advancement. Sun et al. (2022) found that professional identity is associated with career satisfaction through psychological empowerment and work engagement. Murwaningsih (2024) showed that professional attitudes,

well-being, continuous self-development, and job satisfaction are related to teacher performance. Meng and Briscioli (2024), Gao et al. (2025), and Kontar et al. (2025) further demonstrated that achievement recognition, career adaptability, professional-development support, training opportunities, reward systems, and working conditions contribute to teachers' motivation and professional sustainability.

These issues are relevant among public elementary-school teachers in Pabelan District, Semarang Regency. Preliminary observations indicated several challenges, including limited awareness in completing lesson plans and classroom administration, insufficient creativity, suboptimal use of instructional media, limited feedback-seeking behavior, and difficulties in time management. Training opportunities were also unevenly distributed, and some teaching practices remained monotonous. During 2020–2024, only 21 teachers, or approximately 12% of 168 civil servant teachers, experienced advancement in rank and grade. These conditions are important because professional-development opportunities, recognition, organizational support, and career clarity are associated with teachers' motivation, engagement, and career sustainability (Sun et al., 2022; Meng & Briscioli, 2024; Gao et al., 2025; Kontar et al., 2025).

Previous studies have provided valuable evidence regarding factors related to teacher motivation and professional outcomes; however, existing research remains relatively fragmented. Studies on principal leadership have mainly examined its relationship with teacher motivation, self-efficacy, job satisfaction, collaboration, and professional learning (Yalçinkaya et al., 2021; Liu et al., 2021; Bektaş et al., 2022; Meyer et al., 2022; Polatcan et al., 2023; Karakose et al., 2024; Hallinger et al., 2025). Research on pedagogical competence has focused primarily on competence improvement, instructional practices, professional learning, and teacher performance (Hastuti et al., 2022; Hallinger et al., 2023; Meyer et al., 2023; Azizah et al., 2024). Meanwhile, career development research has emphasized professional identity, career satisfaction, recognition, adaptability, professional development, and retention (Sun et al., 2022; Meng & Briscioli, 2024; Gao et al., 2025; Kontar et al., 2025). Therefore, limited studies have integrated organizational factors, professional competence, and career-related factors simultaneously as predictors of teachers' achievement motivation.

The novelty of this study lies in developing an integrated model that combines principal leadership as an organizational factor, pedagogical competence as a professional capability factor, and career development as a professional growth factor. This study also contributes empirical evidence from the Indonesian elementary-school context, particularly public elementary schools in Pabelan District, Semarang Regency. Furthermore, this study identifies the relative contribution of each predictor and examines whether pedagogical competence represents the strongest predictor of teachers' achievement motivation.

Based on this research gap, this study aims to analyze the partial and simultaneous relationships of principal leadership, pedagogical competence, and career development with teachers' achievement motivation. The research questions are: Does principal leadership predict teachers' achievement motivation? Does pedagogical competence predict teachers' achievement motivation? Does career development predict teachers' achievement motivation? Do principal leadership, pedagogical competence, and career development jointly predict teachers' achievement motivation?

The hypotheses are formulated as follows: H1: Principal leadership positively predicts teachers' achievement motivation. H2: Pedagogical competence positively predicts teachers' achievement motivation. H3: Career development positively predicts teachers' achievement motivation. H4: Principal leadership, pedagogical competence, and career development jointly predict teachers' achievement motivation.

Methods

This study employed a quantitative approach with an associative ex post facto design. This design was selected because the independent variables represented existing conditions that were not manipulated by the researchers. The study aimed to examine the relationships between principal leadership, pedagogical competence, career development, and teachers' achievement motivation. The research was conducted in public elementary schools in Pabelan District, Semarang Regency, from November 2025 to May 2026.

The study involved three independent variables, namely principal leadership (X_1), pedagogical competence (X_2), and career development (X_3), and one dependent variable, teachers' achievement motivation (Y). The population consisted of 186 active teachers from 21 public elementary schools in Pabelan District, Semarang Regency. All teachers who were actively teaching during the research period and had sufficient professional experience to provide information regarding leadership, competence, career development, and achievement motivation were included as eligible participants.

The sample size was determined using Slovin's formula with a 5% margin of error: $n = \frac{N}{1 + Ne^2}$, where (n) is the required sample size (186 teachers), (N) is the population size, and (e) is the tolerated margin of error (0.05). The calculation was: $n = \frac{186}{1 + 186 (0,05)^2} = \frac{186}{1,4675} = 127,4276$.

Therefore, the minimum sample requirement was 127 respondents. This study involved 128 teachers, which exceeded the minimum requirement and was considered adequate for statistical analysis.

The sampling technique used was proportionate stratified random sampling. Each of the 21 public elementary schools was considered a stratum to ensure proportional representation. The number of respondents from each school was calculated based on the proportion of teachers in each school compared with the total population. After determining the required number of respondents from each school, individual teachers were selected using simple random sampling from the list of eligible teachers in each school. This procedure ensured that all eligible teachers had an equal opportunity to be selected.

The difference between 186 teachers reported in the Methods section and 168 civil servant teachers mentioned in the preliminary observation should be understood as referring to different groups. The population of this study consisted of 186 active teachers, including both civil servant and non-civil servant teachers. Meanwhile, the figure of 168 teachers referred specifically to civil servant teachers used to describe rank and grade advancement during 2020–2024. Therefore, these numbers represent different reference populations and do not indicate inconsistency.

Data were collected using a questionnaire developed based on theoretical constructs and previous research. The instrument measured four variables: principal leadership, pedagogical competence, career development, and teachers' achievement motivation. Principal leadership was measured through environmental concern, relevant vision and mission strategies, communication skills and self-confidence, and concern for subordinates/followers. Pedagogical competence was measured through understanding student characteristics, mastery of learning theories, curriculum development, creating educative learning experiences, and developing students' potential. Career development was measured through work performance, experience, and self-development.

Teachers' achievement motivation was measured based on McClelland's motivation theory, which explains human motivation through three fundamental needs: need for

achievement, need for affiliation, and need for power. Although need for affiliation and need for power represent broader motivational orientations, McClelland's framework explains that these needs influence individual behavior, goal orientation, interpersonal relationships, and achievement-related actions within organizational contexts. Therefore, these three dimensions were integrated to represent teachers' motivation to achieve professional goals, maintain constructive professional relationships, and contribute to organizational improvement.

The initial instrument consisted of 27 items for principal leadership, 42 items for pedagogical competence, 40 items for career development, and 38 items for achievement motivation. The questionnaire structure distinguished dimensions, indicators, initial items, and final items to provide clarity regarding construct measurement. Before data analysis, instrument validity was assessed through content validity and empirical validity testing. Content validity was established through theoretical review and expert judgment to ensure that each item represented the intended construct. Empirical validity was examined using item-total correlation analysis, with an item considered valid when the correlation coefficient exceeded the critical value of 0.349 ($r\text{-count} > r\text{-table}$). Items that did not meet the criterion were excluded from further analysis. The final number of retained items for each construct was reported based on the validity testing results.

Reliability testing was conducted using Cronbach's Alpha. The reliability coefficients were 0.922 for principal leadership, 0.968 for pedagogical competence, 0.918 for career development, and 0.934 for achievement motivation, indicating high internal consistency. Although the coefficients were relatively high, the items represented different theoretical dimensions and indicators; therefore, the constructs were maintained as multidimensional measures.

Data analysis was performed using IBM SPSS Statistics version 25. Regression assumption tests were conducted before hypothesis testing, including normality, multicollinearity, and heteroscedasticity tests. Multiple linear regression analysis was used to examine the partial and simultaneous relationships among variables. The regression model was expressed as $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$. Partial relationships were tested using t-tests, simultaneous relationships were examined using F-tests, and the coefficient of determination (R^2) was used to determine the contribution of principal leadership, pedagogical competence, and career development in explaining teachers' achievement motivation.

Result and Discussion

The study involved 128 public elementary school teachers in Pabelan District, Semarang Regency as respondents. Data were collected using a Likert-scale questionnaire designed to measure teachers' achievement motivation (Y), principal leadership (X_1), pedagogical competence (X_2), and career development (X_3). The analysis included descriptive statistics, regression assumption testing, and hypothesis testing using multiple linear regression analysis. The descriptive statistics for the four research variables are presented in Table 2.

Table 2. Descriptive Statistics of the Research Variables

Variable	N	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Teachers' achievement motivation (Y)	128	148.09	145.50	137	12.014	110	170
Principal leadership (X_1)	128	121.05	123.00	109	9.177	104	135
Pedagogical competence (X_2)	128	161.06	161.00	152	15.479	113	188
Career development (X_3)	128	128.93	127.50	120	11.390	103	150

Source: Processed primary data, 2026.

Teachers' achievement motivation had a mean score of 148.09, with a standard deviation of 12.014, a minimum score of 110, and a maximum score of 170. Based on the frequency distribution, the largest proportion of respondents was in the moderate category, comprising 56 respondents (43.750%), followed by the very high category with 41 respondents (32.031%), the high category with 23 respondents (17.969%), the low category with 7 respondents (5.469%), and the very low category with 1 respondent (0.781%).

Principal leadership had a mean score of 121.05, with a standard deviation of 9.177, a minimum score of 104, and a maximum score of 135. The frequency distribution indicated that the largest proportion of respondents was in the very high category, comprising 39 respondents (30.469%), followed by the high category with 34 respondents (26.563%), the very low category with 26 respondents (20.313%), the low category with 18 respondents (14.063%), and the moderate category with 11 respondents (8.594%).

Pedagogical competence had a mean score of 161.06, with a standard deviation of 15.479, a minimum score of 113, and a maximum score of 188. A total of 47 respondents (36.719%) were classified in the high category, 41 respondents (32.031%) in the moderate category, 26 respondents (20.313%) in the very high category, 9 respondents (7.031%) in the low category, and 5 respondents (3.906%) in the very low category. Thus, the largest group of respondents perceived their pedagogical competence as being in the high category.

Career development had a mean score of 128.93, with a standard deviation of 11.390, a minimum score of 103, and a maximum score of 150. The largest proportion of respondents was in the moderate category, comprising 42 respondents (32.813%), followed by the high category with 33 respondents (25.781%), the very high category with 24 respondents (18.750%), the low category with 17 respondents (13.281%), and the very low category with 12 respondents (9.375%).

In addition to the total scores, descriptive analysis was conducted for each dimension of the four research variables. The results are presented in Table 3.

Table 3. Achievement Percentages for the Dimensions of the Research Variables

Variable	Dimension	Percentage (%)
Teachers' achievement motivation (Y)	Need for achievement	87.297
	Need for affiliation	88.097
	Need for power	85.402
Principal leadership (X ₁)	Concern for the environmental context	88.28
	Relevant vision and mission strategies	89.27
	Communication skills and self-confidence	90.06
	Concern for subordinates/followers	90.09
Pedagogical competence (X ₂)	Understanding student characteristics	84.323
	Mastery of learning theories	82.148
	Curriculum development	83.906
	Creating educative learning experiences	84.948
	Developing students' potential	85.926
Career development (X ₃)	Work performance	82.90
	Experience	86.90
	Self-development	87.50

Source: Processed primary data, 2026.

The percentage values presented in Table 3 represent the achievement percentage calculated by dividing the observed mean score of each dimension by the maximum possible score of that dimension and multiplying the result by 100. Therefore, these percentages indicate

the relative attainment level of each dimension based on the respondents' responses rather than representing population proportions.

For teachers' achievement motivation, the highest percentage was found in the need for affiliation dimension (88.097%), whereas the lowest percentage was found in the need for power dimension (85.402%). For principal leadership, the highest percentage was recorded for concern for subordinates/followers (90.09%), while the lowest percentage was found for concern for the environmental context (88.28%). Regarding pedagogical competence, the highest achievement was found in the development of students' potential (85.926%), whereas the lowest was found in mastery of learning theories (82.148%). For career development, the highest percentage was recorded for self-development (87.50%), followed by experience (86.90%) and work performance (82.90%).

Results of the Regression Assumption Tests

Before conducting multiple linear regression analysis, normality, multicollinearity, and heteroscedasticity tests were performed.

Table 4. Summary of Regression Assumption Test Results

Test	Result	Criterion	Conclusion
Kolmogorov–Smirnov normality test	Asymp. Sig. = 0.200	> 0.05	Normality assumption satisfied
Multicollinearity X_1	Tolerance = 0.330; VIF = 3.029	Tolerance > 0.10; VIF < 10	No multicollinearity
Multicollinearity X_2	Tolerance = 0.293; VIF = 3.417	Tolerance > 0.10; VIF < 10	No multicollinearity
Multicollinearity X_3	Tolerance = 0.232; VIF = 4.309	Tolerance > 0.10; VIF < 10	No multicollinearity
Heteroscedasticity	Scatterplot points were distributed above and below zero without a specific pattern	No systematic pattern	No indication of heteroscedasticity

Source: Processed primary data, 2026.

The Kolmogorov–Smirnov test produced an Asymp. Sig. value of 0.200, indicating that the residual distribution did not significantly deviate from normality. However, because the sample size was 128, normality assessment was not based solely on the statistical test. The normal probability plot was also examined, and the residual distribution showed an acceptable pattern following the diagonal line. Therefore, the normality assumption was considered adequately satisfied.

The multicollinearity test showed that all independent variables had tolerance values greater than 0.10 and VIF values below 10. Principal leadership had a tolerance value of 0.330 and a VIF of 3.029; pedagogical competence had a tolerance value of 0.293 and a VIF of 3.417; and career development had a tolerance value of 0.232 and a VIF of 4.309. Therefore, the regression model showed no indication of multicollinearity.

Based on the scatterplot, the residual points were distributed above and below zero without forming a systematic pattern. Thus, the model showed no indication of heteroscedasticity. The heteroscedasticity assessment was conducted through residual scatterplot examination. The residual points were distributed randomly above and below the zero line without forming a systematic pattern, indicating no clear evidence of heteroscedasticity. The scatterplot is provided as supplementary diagnostic evidence.

Multiple Linear Regression Analysis

Multiple linear regression analysis was employed to examine the effects of principal leadership, pedagogical competence, and career development on teachers' achievement motivation. The results are presented in Table 5.

Table 5. Results of Multiple Linear Regression Analysis

Variable	B	Std. Error	Beta	t	Sig.
Constant	23.440	7.239	–	3.238	0.002
Principal leadership (X_1)	0.232	0.103	0.177	2.243	0.027
Pedagogical competence (X_2)	0.336	0.065	0.434	5.168	< 0.001
Career development (X_3)	0.329	0.099	0.312	3.309	0.001

Source: Processed primary data, 2026.

Based on the regression results, the estimated regression equation was: $Y^{\wedge} = 23.440 + 0.232 X_1 + 0.336 X_2 + 0.329 X_3$. The equation indicates that all regression coefficients were positive. The coefficient for principal leadership was 0.232, indicating that a one-unit increase in principal leadership, while holding the other variables constant, was associated with a 0.232-unit increase in the predicted score of teachers' achievement motivation. Similarly, the coefficients for pedagogical competence (0.336) and career development (0.329) indicated positive relationships with teachers' achievement motivation.

Based on the standardized Beta coefficients, pedagogical competence had the largest coefficient ($\beta = 0.434$), followed by career development ($\beta = 0.312$) and principal leadership ($\beta = 0.177$). Therefore, among the three predictors included in the model, pedagogical competence exhibited the strongest relative association with teachers' achievement motivation.

Partial Hypothesis Testing

The partial hypothesis tests indicated that all three independent variables had positive and statistically significant effects on teachers' achievement motivation. First, principal leadership had a positive and significant effect on teachers' achievement motivation, with a regression coefficient of 0.232, $t=2.243$, and $p=0.027<0.05$. Therefore, the first hypothesis, which proposed that principal leadership affects teachers' achievement motivation, was supported. Second, pedagogical competence had a positive and significant effect on teachers' achievement motivation, with a regression coefficient of 0.336, $t=5.168$, and $p<0.001$. Thus, the second hypothesis was supported. Third, career development had a positive and significant effect on teachers' achievement motivation, with a regression coefficient of 0.329, $t=3.309$, and $p=0.001$. Therefore, the third hypothesis was also supported. The results of the partial hypothesis tests are summarized in Table 6.

Table 6. Summary of Partial Hypothesis Testing

Hypothesis	Relationship	t	Sig.	Decision
H_1	Principal leadership $\rightarrow$ Teachers' achievement motivation	2.243	0.027	Supported
H_2	Pedagogical competence $\rightarrow$ Teachers' achievement motivation	5.168	< 0.001	Supported
H_3	Career development $\rightarrow$ Teachers' achievement motivation	3.309	0.001	Supported

Source: Processed primary data, 2026.

Simultaneous Hypothesis Testing

The simultaneous test was conducted to examine the joint effect of principal leadership, pedagogical competence, and career development on teachers' achievement motivation. The ANOVA results yielded an F value of 120.571, with 3 regression degrees of freedom, 124 residual degrees of freedom, and a significance level of $p < 0.001$.

Table 7. Results of the Simultaneous Test (F-Test)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13,651.976	3	4,550.659	120.571	< 0.001
Residual	4,680.079	124	37.743	–	–
Total	18,332.055	127	–	–	–

Source: Processed primary data, 2026.

The significance value below 0.05 indicates that the regression model was statistically significant. Therefore, principal leadership, pedagogical competence, and career development jointly had a significant effect on the achievement motivation of public elementary school teachers in Pabelan District, Semarang Regency. Accordingly, the fourth hypothesis was supported.

Coefficient of Determination

The coefficient of determination was used to determine the extent to which the three independent variables jointly explained the variance in teachers' achievement motivation. The results are presented in Table 8.

Table 8. Coefficient of Determination

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.863	0.745	0.739	6.143

Source: Processed primary data, 2026.

The analysis yielded an R value of 0.863 and an R^2 value of 0.745, with an adjusted R^2 of 0.739. The R^2 value of 0.745 indicates that principal leadership, pedagogical competence, and career development jointly accounted for 74.5% of the variance observed in teachers' achievement motivation within this regression model. However, this value should be interpreted cautiously because all variables were measured using self-report questionnaires collected from the same respondents at the same time. Therefore, the possibility of common method bias cannot be completely excluded. The remaining 25.5% represents unexplained variance within the model and should not be interpreted as a fixed proportion attributable to specific external factors.

Overall, the results indicate that all three independent variables were positively associated with teachers' achievement motivation. Based on the standardized Beta coefficients, pedagogical competence demonstrated the strongest relative effect ($\beta = 0.434$), followed by career development ($\beta = 0.312$) and principal leadership ($\beta = 0.177$). Collectively, the three predictors explained 74.5% of the variance in teachers' achievement motivation.

The findings of this study indicate that principal leadership, pedagogical competence, and career development are positively associated with teachers' achievement motivation among public elementary-school teachers in Pabelan District, Semarang Regency. Rather than indicating direct causal relationships, these findings demonstrate that variations in organizational

support, professional competence, and career-related opportunities correspond with differences in teachers' achievement motivation. The integrated model contributes to the understanding that teachers' motivation is related to multiple dimensions of their professional environment.

Pedagogical competence emerged as the strongest predictor in the model. This finding suggests that teachers' achievement motivation is closely related to their confidence and capability in performing core instructional responsibilities. Teachers who possess stronger pedagogical competence may experience greater professional efficacy because they are better able to understand student characteristics, design appropriate learning activities, conduct assessments, and facilitate student development. Successful instructional experiences may reinforce teachers' willingness to improve their professional performance and pursue higher achievement goals. This interpretation is consistent with Hastuti et al. (2022), who emphasized the importance of lesson planning, instructional media, teaching materials, and assessment practices in strengthening pedagogical competence. Azizah et al. (2024) further highlighted that pedagogical competence enables teachers to respond effectively to diverse student needs.

The strong contribution of pedagogical competence also extends previous research by showing that competence is not only related to teaching quality and professional practice but is also associated with teachers' achievement motivation. Previous studies have primarily examined pedagogical competence in relation to professional learning and instructional improvement (Hallinger et al., 2023; Meyer et al., 2023). The present findings suggest that competence development may also have motivational implications because teachers who perceive themselves as capable may develop stronger confidence, professional commitment, and achievement orientation.

Principal leadership demonstrated the smallest standardized contribution among the three predictors, although it remained positively associated with teachers' achievement motivation. This finding does not indicate that leadership is unimportant. Instead, it suggests that leadership may operate through broader organizational mechanisms that indirectly support teacher motivation. Principals create conditions that enable professional learning, collaboration, trust, and career development rather than directly determining teachers' internal motivation. This interpretation is consistent with Liu et al. (2021), who found that instructional and distributed leadership are related to teacher self-efficacy and job satisfaction through supportive school culture and collaboration. Similar findings have been reported regarding the relationship between principal leadership, teacher collaboration, collective efficacy, and professional learning (Meyer et al., 2022; Bektaş et al., 2022; Polatcan et al., 2023; Karakose et al., 2024; Đuranović et al., 2024; Hallinger et al., 2025).

Career development also showed a positive association with teachers' achievement motivation. This finding supports the perspective that professional growth opportunities, recognition, and career pathways are important elements of teachers' professional experiences. Teachers who perceive opportunities for self-development and professional advancement may develop stronger motivation to improve their performance. This result is consistent with Sun et al. (2022), Meng and Briscioli (2024), Gao et al. (2025), and Kontar et al. (2025), who emphasized the importance of professional identity, recognition, adaptability, development support, and working conditions in shaping teachers' professional outcomes.

The relatively high explanatory value of the regression model should be interpreted carefully. The combination of principal leadership, pedagogical competence, and career development represents organizational, professional, and career dimensions that are theoretically relevant to teachers' motivation. However, because all variables were collected through self-report questionnaires from the same respondents, common method bias may have contributed to the observed relationships. Therefore, future studies should consider using

multiple data sources, longitudinal designs, or objective indicators to strengthen causal interpretation.

The findings provide theoretical implications by supporting an integrated perspective in which teachers' achievement motivation is associated with interactions among organizational conditions, professional capability, and career opportunities. Rather than viewing motivation as an individual psychological characteristic alone, this study highlights the importance of the broader professional ecosystem surrounding teachers.

From a practical perspective, elementary schools in Indonesia should strengthen teacher achievement motivation through integrated strategies. Principals should continue developing supportive leadership practices, including communication, teacher involvement, and professional support. Schools should prioritize pedagogical competence development through mentoring, professional learning communities, reflective teaching, and instructional improvement programs. In addition, educational institutions should establish transparent career development systems that provide equitable opportunities for training, recognition, and professional advancement.

Conclusion

This study concludes that principal leadership, pedagogical competence, and career development are positively associated with teachers' achievement motivation among public elementary-school teachers in Pabelan District, Semarang Regency. The findings indicate that teachers' achievement motivation is related to a combination of organizational support, professional competence, and opportunities for career development. Among the three predictors, pedagogical competence demonstrated the strongest relative contribution, suggesting that teachers' capability to manage learning processes and develop students' potential is closely connected with their motivation to achieve professional goals. The findings highlight the importance of an integrated approach in strengthening teacher motivation through supportive school leadership, continuous improvement of pedagogical competence, and sustainable career development opportunities. Future studies may consider longitudinal designs and multiple data sources to further explore the dynamic relationships among these variables.

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