

Analysis of Factors Influencing the Interest in Becoming a Teacher among Students of the Mechanical Engineering Education Study Program

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Abstract

This study was motivated by the persistently low interest among some students in the Mechanical Engineering Education Study Program at Universitas Negeri Padang in pursuing a career as a teacher. The study aimed to describe the level of interest in becoming a teacher and to determine the partial influence of internal and external factors on that interest. A quantitative approach with a descriptive method was employed. The sample consisted of 43 students from the Mechanical Engineering Education Study Program (Class of 2022), selected using purposive sampling. Data collection utilized a Likert-scale questionnaire that had undergone validity and reliability testing. Data analysis techniques included descriptive analysis, prerequisite tests (normality, linearity, and multicollinearity tests), simple regression analysis, correlation coefficient, coefficient of determination, and the t-test. The results indicate that: (1) student interest in pursuing a teaching career tends to fall within the low-to-moderate range. (2) Internal factors have a positive relationship but do not exert a significant influence on the interest in becoming a teacher among the Class of 2022 Mechanical Engineering Education students at Universitas Negeri Padang, contributing an influence of 8.2%. (3) External factors have a positive relationship but do not exert a significant influence on the interest in becoming a teacher among the Class of 2022 Mechanical Engineering Education students at Universitas Negeri Padang, contributing an influence of 10.4%.

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1. INTRODUCTION

Education is a central instrument for improving human-resource quality, and teachers occupy a strategic position in achieving national educational goals. Indonesian Law No. 14 of 2005 defines teachers as professional educators responsible for educating, teaching, guiding, training, assessing, and evaluating learners. Accordingly, teacher quality is closely related not only to pedagogical and professional competence but also to commitment to the teaching profession. Interest in becoming a teacher is therefore an important psychological foundation because it directs attention, effort, persistence, and career preparation toward teaching.

Teacher-career interest refers to an individual's attraction, willingness, and intention to choose teaching as a future occupation. It involves cognitive understanding of the profession, positive emotions toward teaching, and conative willingness to prepare for and carry out teachers' responsibilities. Students enrolled in teacher-education programs are generally expected to develop such interest, yet enrollment in an educational program does not always guarantee that graduates will pursue teaching careers.

This issue is especially relevant in Mechanical Engineering Education, where graduates have dual career opportunities. They can become vocational teachers or work as technicians and practitioners in manufacturing and other industrial sectors. An initial survey of 13 students in the Mechanical Engineering Education Study Program at Universitas Negeri Padang found that 10 students (76.9%) were not interested in becoming teachers. Several reported choosing the program because of parental encouragement or an unsuitable major choice, while others considered industrial careers more attractive because of income prospects, dynamic work environments, and broader career development.

Previous studies have reported different determinants of teacher-career interest. Ardyani and Latifah (2014) identified perceptions of the teaching profession, teacher welfare, academic achievement, teaching practice, peers, family environment, and personality as contributing factors. Sari (2018) found significant effects of teaching-practice experience, family environment, and peers, whereas Sholichah and Pahlevi (2021) found that perceptions of the teaching profession had a positive significant effect but self-efficacy did not. In a context closer to this study, Prakoso and Djatmiko (2024) reported low interest among Mechanical Engineering Education students in becoming vocational teachers.

The inconsistency of previous findings indicates that the effects of internal and external factors may vary according to program characteristics, learning experiences, and available career alternatives. The novelty of this study lies in examining students in a technical teacher-education program who possess a realistic choice between teaching and industrial employment. Internal factors were represented by motivation and perception, while external factors were represented by family environment and peers. This study therefore aimed to: (1) describe students' interest in becoming teachers; (2) determine the partial effect of internal factors on that interest; and (3) determine the partial effect of external factors on that interest.

Previous studies have identified various determinants of students' interest in becoming teachers. Ardyani and Latifah (2014) reported that perceptions of the teaching profession, teacher welfare, academic achievement, teaching practice, peer influence, family environment, and personality significantly contributed to teacher-career interest. Sari (2018) similarly found that teaching-practice experience, family environment, and peers positively influenced students' intention to become teachers, whereas Sholichah and Pahlevi (2021) concluded that perceptions of the teaching profession significantly affected teacher-career interest, while self-efficacy showed no significant effect. More recently, Prakoso and Djatmiko (2024) reported that Mechanical Engineering Education students exhibited relatively low interest in pursuing careers as vocational teachers.

Three research gaps remain. First, prior studies have concentrated on social science and accounting education students, leaving technical teacher-education programs—where graduates face a direct choice between teaching and industrial careers—largely unexamined. Second, most studies isolated single determinants such as teaching practice, self-efficacy, or professional perceptions, rather than jointly testing internal factors (motivation and perception) and external factors (family environment and peers). Third, mixed findings on the significance of these factors suggest that their effects are context-dependent, varying with program characteristics and available career alternatives.

2. METHOD

This study employed a quantitative descriptive approach. The research was conducted in July 2026 in the Mechanical Engineering Education Study Program, Department of Mechanical Engineering, Faculty of Engineering, Universitas Negeri Padang, Indonesia. The population consisted of 74 active students from the 2022 cohort. Purposive sampling was used because the selected students had completed educational courses and had teaching experience through microteaching and/or school field practice. Using the Slovin formula with a 10% error level, 43 students were selected as respondents.

Data were collected through a four-point Likert questionnaire ranging from 1 (strongly disagree) to 4 (strongly agree). Internal factors comprised motivation and perception; external factors comprised family

environment and peers; and interest in becoming a teacher comprised cognition, emotion, and conation. Initially, the questionnaire contained 50 statements. Empirical validity testing with 31 trial respondents resulted in 14 valid internal-factor items, 14 valid external-factor items, and 15 valid teacher-interest items. Reliability testing produced Cronbach's alpha coefficients of 0.850, 0.854, and 0.846, respectively, indicating high reliability.

The data were analyzed using IBM SPSS Statistics 16. Descriptive analysis included the mean, median, standard deviation, minimum, maximum, and response percentages for each indicator. Assumption testing included Shapiro-Wilk normality tests, linearity tests, and multicollinearity tests. Simple linear regression, rather than multiple regression, was used because each research objective concerned the partial effect of a single predictor—internal or external factors—on teacher-career interest, and the multicollinearity test confirmed that the two predictors were sufficiently independent (tolerance = 0.976; VIF = 1.024) for separate simple-regression models to be appropriate and readily interpretable. Pearson correlation and the coefficient of determination were used alongside each regression to describe the strength and explanatory power of each predictor, while partial t-tests at a significance level of 0.05 were then applied to determine whether each predictor's effect remained statistically significant on its own.

3. RESULTS AND DISCUSSION

3.1 Descriptive Results

The descriptive results indicate that the three variables were distributed across relatively broad score ranges. Teacher-career interest had a mean score of 32.47, with most scores concentrated around 29–33. Internal factors had a mean of 34.42, while external factors had a mean of 32.44.

Table 1. Descriptive statistics of the research variables

Variable	N	Mean	Median	SD	Minimum	Maximum
Internal factors (X_1)	43	34.42	35	6.493	22	45
External factors (X_2)	43	32.44	33	6.371	20	45
Interest in becoming a teacher (Y)	43	32.47	32	4.886	22	43

Indicator-level responses reveal an important contrast. Motivation was dominated by disagreement responses: 42.27% disagreed and 27.70% strongly disagreed with statements reflecting commitment and aspiration to become teachers. Perception was more balanced, with 28.93% strongly agreeing and 27.27% agreeing, although 31.82% still disagreed. Thus, many students acknowledged the positive role and image of teachers but did not demonstrate equally strong personal motivation to choose teaching as a career.

For external factors, disagreement also dominated the family-environment indicator (40.20%) and peer indicator (34.88%). These distributions suggest that families and peer groups did not consistently direct students toward teaching. In contrast, the dimensions of teacher interest itself showed generally positive cognitive, emotional, and conative responses. Cognition obtained 37.21% strongly agree and 28.49% agree; emotion obtained 33.72% strongly agree and 27.52% agree; and conation obtained 36.28% strongly agree and 25.58% agree. The coexistence of positive knowledge and feelings with low motivation suggests ambivalence: students can appreciate teaching while remaining uncertain about selecting it as their main career. Taken together, Tables 1 and 2 indicate that the moderate overall scores in Table 1 mask a more specific

pattern revealed in Table 2: students are cognitively and emotionally positive about teaching yet motivationally reluctant to commit to it as a career. This internal ambivalence, rather than a uniformly low regard for the profession, foreshadows the modest and statistically non-significant effects of internal and external factors reported in the regression analyses below.

Table 2. Distribution of responses by indicator (%)

Indicator	Strongly agree	Agree	Disagree	Strongly disagree
Motivation	18.37	11.66	42.27	27.70
Perception	28.93	27.27	31.82	11.98
Family environment	19.27	14.95	40.20	25.58
Peers	20.93	18.94	34.88	25.25
Cognition	37.21	28.49	21.51	12.79
Emotion	33.72	27.52	23.26	15.50
Conation	36.28	25.58	22.33	15.81

3.2 Assumption Tests

All variables met the assumptions required for regression analysis. The Shapiro-Wilk significance values for internal factors, external factors, and teacher-career interest were 0.131, 0.165, and 0.283, respectively, all above 0.05. The relationships between internal factors and interest ($p = 0.244$) and between external factors and interest ($p = 0.697$) were linear. Tolerance values of 0.976 and VIF values of 1.024 indicated no multicollinearity.

Table 3. Summary of assumption tests

Test	Relationship/Variable	Statistic	Decision
Normality (Shapiro-Wilk)	Internal factors	$p = 0.131$	Normal
Normality (Shapiro-Wilk)	External factors	$p = 0.165$	Normal
Normality (Shapiro-Wilk)	Teacher interest	$p = 0.283$	Normal
Linearity	$X_1 - Y$	$p = 0.244$	Linear
Linearity	$X_2 - Y$	$p = 0.697$	Linear
Multicollinearity	X_1 and X_2	Tolerance = 0.976; VIF = 1.024	No multicollinearity

3.3 Effects of Internal and External Factors

Simple regression showed that internal factors had a positive correlation with teacher-career interest ($r = 0.286$). The regression equation was $Y = 25.046 + 0.216X_1$, indicating that a one-unit increase in the internal-factor score predicted a 0.216-point increase in teacher-interest score. The coefficient of determination was $R^2 = 0.082$, meaning that motivation and perception explained 8.2% of the variance in teacher-career interest.

External factors had a slightly stronger positive correlation with teacher-career interest ($r = 0.322$). The regression equation was $Y = 24.450 + 0.247X_2$, and $R^2 = 0.104$. Thus, family environment and peers explained 10.4% of the variance in teacher-career interest, while the remaining 89.6% was attributable to variables outside the model.

Table 4. Simple regression results

Predictor	r	R ²	Regression equation	t	p
Internal factors (X ₁)	0.286	0.082	$Y = 25.046 + 0.216X_1$	1.914	0.063
External factors (X ₂)	0.322	0.104	$Y = 24.450 + 0.247X_2$	2.179	0.035

When both predictors were examined through partial t-tests, internal factors produced $t = 1.654$ and $p = 0.106$, while external factors produced $t = 1.943$ and $p = 0.059$. Both p-values exceeded 0.05. **Consequently**, the null hypotheses were accepted: neither internal nor external factors had a statistically significant partial effect on interest in becoming a teacher.

Table 5. Partial t-test results

Predictor	B	Standard error	Beta	t	p	Conclusion
Internal factors	0.182	0.110	0.242	1.654	0.106	Not significant
External factors	0.218	0.112	0.285	1.943	0.059	Not significant

3.4 Discussion

The positive but non-significant contribution of internal factors can be understood through the imbalance between motivation and perception. Students generally recognized that teachers have an important role and require professional competence, yet this positive perception was not converted into a firm commitment to enter teaching. More than two-thirds of motivation responses fell in the disagree or strongly disagree categories. This indicates that knowing and respecting the teaching profession are cognitively different from having a personal desire to pursue it.

This pattern supports Prakoso and Djatmiko (2024), who reported low interest among Mechanical Engineering Education students in becoming vocational teachers and identified low willingness as one of the dominant indicators. Mechanical engineering students encounter a strong competing career pathway in manufacturing and industry. Industrial work may be perceived as providing higher or more dynamic income, varied work settings, and broader technical career development. Therefore, intrinsic motivation to teach may remain weak even when students have adequate pedagogical knowledge and positive views of teachers.

The findings complement Sholichah and Pahlevi (2021), who found that perceptions of the teaching profession significantly influenced interest in another teacher-education context. In the present sample, perception alone was insufficient. The difference suggests that the effect of perception depends on the occupational alternatives available to students. For technical-education students, a positive professional image must compete with attractive non-teaching careers directly aligned with their technical competence.

External factors also showed a positive direction but no significant partial effect. Family and peers may provide information, encouragement, and social approval, but the response distributions indicate that these influences were not strongly oriented toward teaching. Many families may allow students to make autonomous career decisions or support industrial careers because they are perceived as more financially secure. Peer discussions may likewise focus on

industrial recruitment, technical certification, and employment in business and industry rather than on vocational-school teaching.

These results differ from Ardyani and Latifah (2014) and Sari (2018), who reported meaningful contributions from family and peers. The difference is plausibly related to the characteristics of the study programs. Students in accounting or economics education often have career alternatives that differ from those of mechanical engineering students, who have a particularly direct double opportunity: becoming vocational teachers or technical professionals. In this context, social support is dispersed across multiple career options and therefore does not create a sufficiently concentrated push toward teaching.

Beyond this substantive explanation, several factors may account for the non-significant partial effects observed here. First, statistical power was limited: with only 43 respondents, the analysis had limited capacity to detect partial effects of the modest magnitude found ($\beta = 0.242$ and 0.285), and both p-values (0.106 and 0.059) approached but did not cross the conventional threshold, suggesting the effects may be real but underpowered rather than genuinely absent. Second, the sample was drawn from a single cohort within a single study program, which likely restricted the range of variation in both internal and external factor scores and could have attenuated the observed correlations. Third, because interest was measured through self-report at a single point in time, students who cognitively endorsed teaching but had not yet formed a firm behavioral intention may have introduced measurement-related noise into the model, further weakening the detectable partial effects. These considerations suggest that the absence of statistical significance should be interpreted as inconclusive rather than as evidence that internal and external factors are unimportant.

The relatively small explained variance—8.2% for internal factors and 10.4% for external factors—also implies that teacher-career interest is shaped by other variables not examined in this study. Potential factors include teacher welfare, expected income, self-efficacy, teaching-practice experience, academic achievement, labor-market information, professional identity, and perceptions of career advancement. Program-level interventions should therefore go beyond general encouragement. They should strengthen authentic teaching experiences, career counseling, mentoring by successful vocational teachers, and realistic information about professional development and welfare in teaching.

4. CONCLUSION

Students' interest in becoming teachers was concentrated in the low-to-moderate range. Internal and external factors were both positively but not significantly associated with this interest, together explaining only a small proportion of its variance (8.2% and 10.4%, respectively). This indicates that positive attitudes and social support alone do not translate into a strong intention to teach when intrinsic motivation is weak and industrial careers remain an attractive alternative. Mechanical Engineering Education programs should therefore move beyond general encouragement toward more focused career guidance, authentic school-based teaching experiences, and mentoring that connects students' technical expertise to opportunities in vocational teaching.

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