Jurnal Pendidikan Manajemen Perkantoran (JP Manper)

Journal homepage: http://ejournal.upi.edu/index.php/jpmanper

The Effect of Pedagogical Competence and Self-Efficacy on Students' Learning Interest at SMKN 1 Bandung

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ABSTRACT

This study examines the effect of pedagogical competence and self-efficacy on students' learning interest in vocational education. The research was conducted among Grade X Office Management and Business Services students at SMKN 1 Bandung. Using a quantitative explanatory design, data were collected from 106 students selected from a population of 144 through probability sampling. A Likert-scale questionnaire was analyzed using descriptive statistics, assumption testing, and multiple regression. The results show that pedagogical competence, self-efficacy, and learning interest are all in the high category. Pedagogical competence significantly affects learning interest, contributing 29.0%, while self-efficacy contributes 33.7%. Simultaneously, both predictors explain 62.7% of students' learning interest. The findings indicate that learning interest can be improved by strengthening teacher pedagogical practices and students' confidence in learning.

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ARTICLE INFO

Article History:
Submitted/Received 18 Sept 2025
First Revised 11 Jan 2026
Accepted 6 May 2026
First Available online 16 July 2026
Publication Date 25 July 2026

Keyword:
Learning Interest;
Pedagogical competence;
Self efficacy;
Vocational education.

1. INTRODUCTION

Education is a central instrument for developing human resources who are able to participate productively in social, economic, and technological change. In schools, the teaching and learning process becomes the main arena through which students develop academic competence, work habits, social interaction, and confidence in their own ability to learn. In the Indonesian context, the Independent Curriculum encourages learning to move from teacher-dominated instruction toward student-centered learning. This orientation requires students to become active participants in constructing understanding, while teachers are expected to design learning experiences that support inquiry, communication, and meaningful engagement. Weimer (2002) explains that student-centered learning changes the role of teachers from the sole source of knowledge into facilitators who guide students in developing intellectual independence.

Learning interest is an important component of this student-centered orientation. Students who show interest in learning tend to pay attention to learning activities, become more willing to participate, and connect the lesson with their own goals. Slameto (2010) defines learning interest as a tendency to like and feel attracted to an activity without coercion. From a motivational perspective, interest is closely related to attention, persistence, and meaningful engagement. Recent discussions in educational psychology also emphasize that interest develops when learners perceive a learning activity as meaningful and when the environment supports their sense of competence and participation (Renninger & Hidi, 2022; Ryan & Deci, 2020). Therefore, low learning interest should not be viewed only as a student problem, but also as a signal that learning design, classroom interaction, and students' psychological readiness need to be strengthened.

The issue of learning interest is relevant to vocational education. Vocational schools are expected to prepare students with academic knowledge, practical competence, and professional attitudes that correspond to the demands of the workplace. However, students may lose interest when learning activities are perceived as monotonous, unrelated to their field, or difficult to understand. The PISA 2022 report shows that Indonesian students still face challenges in core literacy domains, indicating the need to improve learning quality and engagement (OECD, 2023). Although PISA is not designed specifically for vocational schools, its findings provide a broader indication that strengthening students' engagement and learning confidence remains an important educational agenda in Indonesia.

A similar condition was found in the preliminary study at SMK Negeri 1 Bandung. Based on the initial survey and interviews with Grade X students in the Office Management and Business Services program, several learning problems were identified. Students reported difficulty understanding some lessons, limited exposure to interactive learning media, low curiosity during learning, low confidence in their own academic ability, and limited habit of reviewing learning materials outside class. These observations indicate that students' learning interest is associated with both instructional factors and psychological factors. Instructional factors relate to how teachers plan, deliver, and evaluate learning, while psychological factors relate to students' beliefs about their capacity to succeed in learning tasks.

DOI: https://doi.org/10.17509/jpm.v11i2.90397
p- ISSN 2686-5491 e- ISSN 2656-4734

Teacher pedagogical competence is one of the key instructional factors that can support students' learning interest. Law of the Republic of Indonesia Number 14 of 2005 on Teachers and Lecturers states that teachers are required to possess pedagogical, professional, social, and personality competencies. Pedagogical competence is particularly important because it concerns the ability to understand student characteristics, design learning, implement learning activities, evaluate learning outcomes, and develop students' potential. In the digital era, pedagogical competence also requires teachers to select appropriate media, create interactive tasks, and design activities that reflect students' learning needs. Fauth et al. (2019) show that teacher competence is related to teaching quality and students' interest, indicating that teacher capacity can influence student engagement through the quality of learning processes.

In addition to pedagogical competence, self-efficacy is an internal factor that may shape students' learning interest. Bandura (1997) defines self-efficacy as an individual's belief in their ability to organize and execute actions required to achieve certain outcomes. Students with strong self-efficacy tend to persist when facing difficult tasks, set higher goals, and interpret challenges as opportunities to learn. Conversely, students with weak self-efficacy may avoid challenging tasks and give up more easily. Schunk and DiBenedetto (2020) explain that motivation develops through reciprocal interaction between personal beliefs, behavior, and the environment. In vocational education, self-efficacy becomes important because students are expected to master both theoretical and practical tasks that require persistence.

Previous studies have examined pedagogical competence and learning interest, as well as self-efficacy and learning interest, but the two predictors are often discussed separately or in different contexts. Hijrah et al. (2022) and Wardani et al. (2023) reported that pedagogical competence was associated with students' learning interest. Dewi et al. (2023) found that self-efficacy had a role in students' learning interest. However, research that simultaneously examines teacher pedagogical competence as an instructional factor and self-efficacy as a psychological factor among Grade X vocational students remains limited. The research gap lies in the lack of integrated analysis that connects teacher-related learning support and students' internal confidence in the specific context of the MPLB program at SMK Negeri 1 Bandung.

In the MPLB program, learning interest has practical consequences because students are prepared for administrative, communication, digital documentation, and service-oriented tasks. These competencies require continuous practice and willingness to engage with procedural details. When students perceive learning activities as disconnected from professional practice, their attention may decrease even if they understand the importance of the subject. For that reason, pedagogical competence should be interpreted not only as teachers' formal ability to teach, but also as the ability to translate vocational content into experiences that students perceive as useful, achievable, and relevant to their future careers. Similarly, self-efficacy should be viewed as a learning resource that enables students to persist when they encounter demanding assignments.

This study is grounded in Vygotsky's social constructivism, which emphasizes that learning is constructed through interaction between students, teachers, and the learning environment (Vygotsky, 1978). From this perspective, teacher pedagogical competence can create meaningful interaction and scaffolding, while self-efficacy can encourage

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p- ISSN 2686-5491 e- ISSN 2656-4734

students to take an active role in learning. The novelty of this study is the integrated model that combines an external instructional factor and an internal psychological factor to explain students' learning interest in vocational education. Accordingly, this study aims to describe the level of pedagogical competence, self-efficacy, and learning interest, and to examine the partial and simultaneous effects of pedagogical competence and self-efficacy on students' learning interest.

2. LITERATURE REVIEW AND HYPOTHESES

Pedagogical competence refers to the professional capacity of teachers to manage learning processes. Wahyudi (2010) describes pedagogical competence as the ability to understand learners, design learning, conduct evaluation, and develop students' potential. Rahmat (2018) explains that pedagogical competence distinguishes teachers from many other professions because it relates directly to learning management. In contemporary teaching research, competence is not seen merely as possession of knowledge, but as a continuum that includes knowledge, beliefs, professional judgment, and performance in concrete classroom situations (Blömeke et al., 2015). A teacher may understand curriculum content, but such knowledge becomes meaningful only when it is translated into learning activities that help students understand, practice, and reflect.

The indicators of pedagogical competence used in this study include understanding student characteristics, mastering learning theories and learning principles, developing curriculum, creating educative learning activities, understanding and developing students' potential, communicating effectively, and conducting assessment and evaluation. These indicators are relevant to teaching quality because they represent the way teachers transform curriculum into learning experiences. Praetorius et al. (2018) explain that teaching quality is commonly reflected through classroom management, student support, and cognitive activation. These dimensions show that effective teaching is not only about delivering material, but also about organizing learning, supporting students emotionally and academically, and encouraging deeper thinking.

Pedagogical competence is expected to influence learning interest because students tend to become more engaged when learning activities are understandable, meaningful, and relevant to their context. Teachers with strong pedagogical competence are more capable of choosing appropriate methods, using examples related to students' fields, providing constructive feedback, and creating opportunities for participation. Fauth et al. (2019) found that teacher competence was positively associated with teaching quality and students' interest, which supports the assumption that teacher competence can shape students' affective response to learning. In vocational schools, this relationship is especially important because students need to see a connection between classroom learning and future work competencies.

Self-efficacy is one of the central concepts in social cognitive theory. Bandura (1997) states that self-efficacy concerns individuals' belief in their capacity to perform actions needed to achieve desired outcomes. Self-efficacy affects how individuals think, feel, and behave when they face learning tasks. Students who believe they can succeed are more likely to try, persist, and recover from failure. Those who do not believe in their ability tend to avoid difficult tasks, reduce effort, or interpret obstacles as proof of inability. Honicke

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p- ISSN 2686-5491 e- ISSN 2656-4734

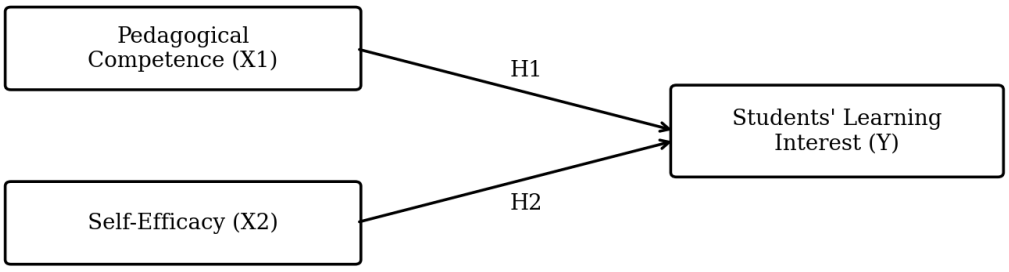
and Broadbent (2016) show that academic self-efficacy is related to academic performance, and the relationship is shaped by cognitive and motivational mechanisms.

Bandura (1997) identifies three dimensions of self-efficacy: level, strength, and generality. Level refers to confidence in completing tasks with different degrees of difficulty. Strength refers to the firmness of belief when individuals encounter obstacles. Generality refers to the extent to which efficacy beliefs apply across different situations. These dimensions are important in vocational learning because students may feel confident in some tasks but less confident in others, particularly when tasks require problem solving, communication, or the use of digital tools. Students with stronger efficacy beliefs are more likely to approach these tasks with persistence and curiosity.

Learning interest is a psychological tendency that leads students to feel attracted to learning and to participate in learning activities. Slameto (2010) describes interest as a sense of liking and attraction toward an activity without coercion. Ariani et al. (2022) define learning interest as an internal drive that produces enjoyment, attention, and involvement in learning. Interest is important because it supports concentration, motivation, and willingness to invest effort. Ryan and Deci (2020) emphasize that motivation becomes stronger when learners experience autonomy, competence, and relatedness. In this sense, learning interest may grow when students feel that learning activities are meaningful, that they are capable of succeeding, and that the learning environment supports them.

In this study, learning interest is measured through four indicators: interest in learning, attention in learning, learning motivation, and knowledge. Interest in learning reflects students' attraction to learning activities. Attention in learning reflects the ability to focus on the learning process. Learning motivation reflects students' internal encouragement to participate and achieve learning goals. Knowledge reflects students' understanding of learning materials and their perception of the usefulness of those materials. These indicators show that learning interest includes both affective and cognitive dimensions.

Figure 1. Conceptual Framework



Note. X1 and X2 are tested as partial and simultaneous predictors of Y.

Based on this framework, the hypotheses are formulated as follows. H1: Pedagogical competence has a positive and significant effect on students' learning interest. H2: Self-efficacy has a positive and significant effect on students' learning interest. H3: Pedagogical competence and self-efficacy simultaneously have a positive and significant effect on students' learning interest.

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Recent studies on teacher quality also indicate that student engagement is closely linked to the way teachers manage interaction and provide instructional support. Zee and Koomen (2016) reported that teacher self-efficacy is connected with classroom processes and students' academic adjustment. Although teacher self-efficacy is different from pedagogical competence, the finding reinforces the argument that teacher-related factors influence how students experience learning. Gagnon et al. (2023) also emphasize that self-efficacy and professional support are important in vocational education and training contexts. These studies suggest that teacher capability and confidence can create a classroom climate that is more responsive to students' needs.

Learning interest is also shaped by the relevance of tasks. Renninger and Hidi (2022) argue that interest can develop when learners process learning activities as personally meaningful and when the environment helps them build competence. In vocational learning, this means that learning materials should be connected with practical scenarios, work-related problems, and authentic tasks. Students are more likely to show attention and motivation when they can understand why a topic matters for their future occupation. Therefore, the integration of pedagogical competence and self-efficacy is important because pedagogical competence can provide relevant learning experiences, while self-efficacy can help students respond to those experiences with confidence.

The relationship among pedagogical competence, self-efficacy, and learning interest can be explained through social constructivism and social cognitive theory. Social constructivism emphasizes that knowledge is developed through interaction and scaffolding. In this view, teachers with pedagogical competence create learning environments that support student participation. Social cognitive theory adds that students' beliefs about their own capabilities influence their effort and persistence. Therefore, learning interest may increase when teachers provide meaningful support and when students believe that they can succeed in learning tasks. The conceptual framework in this study places pedagogical competence and self-efficacy as predictors of learning interest.

3. METHODOLOGY

This study used a quantitative explanatory design. The design was selected because the study aimed not only to describe the condition of pedagogical competence, self-efficacy, and students' learning interest, but also to test the effect of the independent variables on the dependent variable. The research was conducted at SMK Negeri 1 Bandung in 2025. The object of the study was students' learning interest, while the predictors were teacher pedagogical competence as perceived by students and students' self-efficacy.

The population consisted of 144 Grade X students in the Office Management and Business Services program. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in 106 respondents. The sampling technique was simple random sampling, a probability sampling technique that gives each member of the population an equal opportunity to be selected. This sampling technique was considered appropriate because the population was known and relatively homogeneous as all respondents came from the same grade level and program.

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p- ISSN 2686-5491 e- ISSN 2656-4734

Data were collected using a structured questionnaire with a five-point Likert scale ranging from 1 to 5. The questionnaire measured three variables. Pedagogical competence was measured through indicators of understanding student characteristics, mastering learning theories and principles, developing curriculum, creating educative learning activities, developing student potential, communicating effectively, and conducting assessment and evaluation. Self-efficacy was measured through level, strength, and generality. Learning interest was measured through interest in learning, attention in learning, learning motivation, and knowledge.

Table 1. Research Variables, Indicators, and Sources

Variable	Indicators	Main source
Pedagogical competence (X1)	Student characteristics; learning theories; curriculum; educative learning; student potential; communication; assessment and evaluation	Rahmat (2018); Wahyudi (2010)
Self-efficacy (X2)	Level; strength; generality	Bandura (1997)
Learning interest (Y)	Interest in learning; attention in learning; learning motivation; knowledge	Slameto (2010)

Note. Indicators were adapted to the vocational school context.

The questionnaire was distributed to selected students after permission had been obtained from the school. Respondents were informed that their participation was voluntary, that their responses would be used only for academic purposes, and that individual identities would not be disclosed in the report. These procedures were applied to protect respondents and to ensure that students answered the questionnaire without pressure. The data collection process was conducted in a school context and focused only on academic perceptions and learning experiences.

Instrument quality was examined through validity and reliability testing before data analysis. Validity was assessed using item-total correlation, with the critical r value determined by the number of respondents and a 5% significance level. Items were considered valid when the calculated r value exceeded the r-table value. Reliability was assessed using Cronbach's alpha, and a coefficient of .70 or higher was considered acceptable for research instruments. The instrument testing results indicated that the items met the required validity and reliability criteria. The detailed SPSS output should be retained by the authors as supporting evidence during the editorial verification process.

The study focused on students' perceptions because learning interest is experienced directly by students and because students are the primary recipients of classroom pedagogical practices. Perception-based measurement is commonly used in educational research when the objective is to understand how learners evaluate their learning environment. Nevertheless, the interpretation of the findings remains limited to students' responses and does not claim to measure teachers' competence through direct classroom observation. This limitation is considered in the discussion and recommendations.

Table 2. Criteria for Interpreting Variable Descriptions

DOI: https://doi.org/10.17509/jpm.v11i2.90397
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Score range	Pedagogical competence	Self-efficacy	Learning interest
4.20-5.00	Very high	Very high	Very high
3.40-4.19	High	High	High
2.60-3.39	Moderate	Moderate	Moderate
1.80-2.59	Low	Low	Low
1.00-1.79	Very low	Very low	Very low

Note. Adapted from Sugiyono (2022).

Data analysis consisted of descriptive and inferential analysis. Descriptive analysis was used to determine the level of each variable based on the mean score. The interpretation criteria were divided into five categories: very low, low, moderate, high, and very high. Inferential analysis used multiple regression to test the partial and simultaneous effects of pedagogical competence and self-efficacy on learning interest. Before conducting regression, the data were examined through normality, linearity, heteroscedasticity, and multicollinearity tests. All statistical analyses were conducted using SPSS 27.

4. RESULTS AND DISCUSSION

The assumption tests were conducted before the multiple regression analysis. The normality test using the Kolmogorov-Smirnov test produced an Asymp. Sig. (2-tailed) value of .007, which was below .05. Because the initial result indicated non-normality, the Monte Carlo option was used to obtain a more robust significance estimate. The Monte Carlo Sig. (2-tailed) value was .189, which was above .05. Therefore, the residuals were considered to meet the normality assumption. The use of Monte Carlo estimation was appropriate because it provides an alternative significance estimate when the asymptotic result is sensitive to data distribution.

The linearity test showed that the relationship between pedagogical competence and learning interest was linear. The deviation from linearity significance value for X1 and Y was .335, which was greater than .05. The relationship between self-efficacy and learning interest was also linear, with a deviation from linearity significance value of .403. These results indicate that the relationships between the independent variables and the dependent variable can be modeled using linear regression. The heteroscedasticity test was conducted using the White test. The auxiliary regression included X1, X2, X1 squared, X2 squared, and the interaction between X1 and X2; therefore, df = 5 was used. The resulting R2 value was .101. With N = 106, the chi-square statistic was 10.706. Because the calculated chi-square value was lower than the table value of 11.070, the model did not indicate heteroscedasticity. The multicollinearity test showed a tolerance value of .770 and VIF of 1.299 for both independent variables. These values indicate that multicollinearity was not a problem.

Table 3. Summary of Assumption Tests

Assumption test	Result	Decision
Normality	Monte Carlo Sig. (2-tailed) = .189 > .05	Normality assumption met
Linearity X1 -> Y	Deviation from linearity Sig. = .335 > .05	Linear relationship

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Linearity X2 -> Y	Deviation from linearity Sig. = .403 > .05	Linear relationship
Heteroscedasticity	Chi-square = 10.706 < 11.070; df = 5	No heteroscedasticity
Multicollinearity	Tolerance = .770; VIF = 1.299	No multicollinearity

Note. The White test used five predictors in the auxiliary regression.

The multiple regression results show that both pedagogical competence and self-efficacy have positive regression coefficients. The regression equation is Y = 1.295 + 0.413X1 + 0.523X2. This equation means that an increase in pedagogical competence is followed by an increase in students' learning interest when self-efficacy is controlled, and an increase in self-efficacy is followed by an increase in learning interest when pedagogical competence is controlled. The positive direction of both coefficients is consistent with the theoretical assumption that students' learning interest develops through the interaction of external instructional support and internal psychological belief.

Table 4. Multiple Regression Coefficients

Predictor	B	Std. error	Beta	t	Sig.
Constant	1.295	3.683	-	0.352	.724
Pedagogical competence (X1)	0.413	0.065	0.435	6.349	< .001
Self-efficacy (X2)	0.523	0.074	0.485	7.076	< .001

Note. Dependent variable: students' learning interest.

The partial test indicates that pedagogical competence has a positive and significant effect on learning interest. The coefficient for pedagogical competence is B = 0.413, with t = 6.349 and p < .001. This result supports the first hypothesis. The effective contribution of pedagogical competence is 29.0%, indicating that pedagogical competence provides a meaningful contribution to students' learning interest. This result confirms that students' perception of teacher competence is not merely a background condition but is directly related to how students engage with learning activities.

The partial test for self-efficacy also shows a positive and significant effect on learning interest. The coefficient for self-efficacy is B = 0.523, with t = 7.076 and p < .001. This result supports the second hypothesis. The effective contribution of self-efficacy is 33.7%, which is slightly higher than the contribution of pedagogical competence. This indicates that students' confidence in their own ability plays a strong role in shaping their interest in learning. Students who believe that they can understand lessons and overcome learning difficulties are more likely to remain attentive, motivated, and involved.

The simultaneous test shows that pedagogical competence and self-efficacy together have a significant effect on students' learning interest. The F value is 86.725 with p < .001, and the coefficient of determination is R2 = .627. This means that 62.7% of the variance in learning interest can be explained by pedagogical competence and self-efficacy, while the remaining 37.3% is influenced by other factors outside the model. These factors may include family support, peer influence, learning facilities, school climate, digital learning media, or prior academic achievement. The result supports the third hypothesis and shows

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that improving learning interest requires integrated attention to both teacher practice and student belief.

Table 5. Simultaneous Effect and Effective Contribution

Model / predictor	Statistic	Value	Interpretation
Simultaneous model	F	86.725	Significant at p < .001
Simultaneous model	R2	.627	62.7% of variance explained
Pedagogical competence (X1)	Effective contribution	29.0%	Contributes to learning interest
Self-efficacy (X2)	Effective contribution	33.7%	Contributes to learning interest
Other variables	Unexplained variance	37.3%	Influenced by factors outside this model

Note. The effective contributions of X1 and X2 sum to the simultaneous coefficient of determination.

The descriptive analysis of pedagogical competence shows an average score of 3.78, which is categorized as high. The highest indicator is developing curriculum, with a mean score of 4.30. This indicates that students perceived teachers as capable of aligning learning activities with curriculum requirements. The lowest indicator is creating educative learning activities, with a mean score of 3.44. Although still in the high category, this score shows that learning activities need further improvement. In the vocational school context, educative learning activities should be interactive, contextual, and connected to practical office management situations. Teachers can strengthen this indicator by using case-based learning, simulation, collaborative projects, role-play, digital learning media, and formative feedback.

Table 6. Description of Pedagogical Competence

Indicator	Mean
Understanding students' characteristics	3.95
Mastering learning theories and learning principles	3.84
Developing curriculum	4.30
Creating educative learning activities	3.44
Understanding and developing students' potential	3.74
Communicating effectively	3.86
Conducting assessment and evaluation	3.86
Average score	3.78

Note. The overall score is categorized as high.

The descriptive analysis of self-efficacy shows an average score of 3.83, which is also categorized as high. The highest indicator is generality, with a mean score of 3.94. This suggests that students generally believe their learning confidence can apply across different situations. The lowest indicator is strength, with a mean score of 3.76. This result implies that although students show confidence, their confidence may become less stable when they face difficult tasks or failure. Strengthening self-efficacy therefore requires learning experiences that allow students to experience progress. Teachers can provide

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p- ISSN 2686-5491 e- ISSN 2656-4734

step-by-step tasks, clear success criteria, constructive feedback, and opportunities for students to reflect on their improvement.

Table 7. Description of Self-Efficacy

Indicator	Mean
Level	3.81
Strength	3.76
Generality	3.94
Average score	3.83

Note. The overall score is categorized as high.

The descriptive analysis of learning interest shows an average score of 3.90, which is categorized as high. The highest indicator is knowledge, with a mean score of 4.08, suggesting that students understand the value and usefulness of learning. The lowest indicator is attention in learning, with a mean score of 3.67. This indicates that maintaining attention remains a challenge even when students recognize the importance of learning. Attention can be influenced by teaching method, classroom interaction, task difficulty, media use, and students' personal learning readiness. Therefore, efforts to increase learning interest should include strategies to make learning more engaging and to help students regulate attention.

Table 8. Description of Students' Learning Interest

Indicator	Mean
Interest in learning	3.94
Attention in learning	3.67
Learning motivation	3.94
Knowledge	4.08
Average score	3.90

Note. The overall score is categorized as high.

The finding that pedagogical competence affects learning interest is consistent with previous research. Wardani et al. (2023) reported that pedagogical competence contributed to students' learning interest in civic education, while Hijrah et al. (2022) found a significant effect of pedagogical competence on interest in learning Arabic. International research also supports the importance of teacher competence. Fauth et al. (2019) found that teacher competence was related to student outcomes through teaching quality. Similarly, Praetorius et al. (2018) emphasized the importance of classroom management, student support, and cognitive activation as key dimensions of teaching quality. These findings indicate that students' interest can be stimulated when teachers are able to organize meaningful learning and provide adequate support.

In the present study, the low score on creating educative learning activities provides an important practical message. Teachers may already understand the curriculum and conduct evaluation, but students still need learning experiences that are more varied and participatory. In vocational education, learning should connect school subjects with realistic professional situations. For example, students in the Office Management and Business Services program may benefit from simulations of administrative services, digital

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correspondence tasks, meeting management practices, customer service role-play, and collaborative problem solving. Such activities may increase learning relevance and help students see the usefulness of school knowledge for their future work.

The finding that self-efficacy affects learning interest is also consistent with social cognitive theory. Bandura (1997) explains that efficacy beliefs influence motivation, effort, and persistence. Honicke and Broadbent (2016) show that academic self-efficacy is related to academic performance through motivational and cognitive processes. Dewi et al. (2023) also found that self-efficacy had a role in students' learning interest. In the context of this study, self-efficacy has a stronger effective contribution than pedagogical competence. This suggests that students' internal belief is a decisive factor in whether they remain interested when learning becomes difficult.

The strength indicator of self-efficacy deserves special attention because it received the lowest score among the self-efficacy indicators. Students may generally believe that they can learn, but this belief can weaken when they face unfamiliar materials, low scores, or complex assignments. Teachers can help strengthen this dimension by designing tasks that gradually increase in difficulty. Small successes can function as mastery experiences, which Bandura (1997) identifies as a powerful source of self-efficacy. Feedback should focus not only on results but also on strategies, effort, and progress. Peer learning can also support self-efficacy because students may gain confidence when they observe classmates successfully completing similar tasks.

The simultaneous effect of pedagogical competence and self-efficacy provides a more complete explanation of learning interest. Pedagogical competence represents the quality of learning support provided by teachers, while self-efficacy represents students' internal readiness to respond to that support. If teachers provide meaningful learning activities but students do not believe in their ability, participation may remain limited. Conversely, if students have confidence but the learning environment is monotonous, their interest may decline. The model therefore shows that learning interest is not produced by one factor alone. It is developed through the interaction between teacher support and student belief.

This interpretation aligns with Vygotsky's social constructivism. Learning develops through social interaction and scaffolding, but students must also participate actively in the process. Pedagogical competence enables teachers to provide scaffolding, while self-efficacy enables students to use that support. When students are guided through tasks that are challenging but manageable, they are more likely to develop interest and confidence. This relationship also aligns with self-determination theory, which emphasizes that students become more motivated when they feel competent, supported, and involved in meaningful activities (Ryan & Deci, 2020).

Compared with Lumbantobing (2020), who reported a much higher contribution in a higher education context, the 62.7% contribution found in this study is substantial but more moderate. The difference may be caused by differences in educational level, respondent characteristics, number of predictors, and the learning context. Lumbantobing's study involved university students and included intellectual intelligence in the model, while the present study focused on Grade X vocational students and used two predictors. This comparison shows that the magnitude of influence should be interpreted contextually rather than treated as directly comparable across studies.

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Another important implication is that the three descriptive results are consistent with one another. Pedagogical competence is high, self-efficacy is high, and learning interest is also high. However, the lowest indicators show where improvement is still needed. The lowest pedagogical competence indicator concerns creating educative learning activities, while the lowest learning interest indicator concerns attention in learning. These two findings are logically connected. If learning activities are not sufficiently varied or contextual, students may find it difficult to maintain attention. Therefore, improving learning activities may also improve attention. This connection provides a concrete entry point for school improvement programs.

The data also show that self-efficacy contributes slightly more than pedagogical competence. This does not mean that teacher competence is less important. Instead, it suggests that learning interest depends on how students interpret their own capability within the learning environment. A teacher may use good strategies, but students who feel unable may still hesitate to participate. Thus, pedagogical strategies should be designed to build efficacy beliefs. For example, teachers can divide complex vocational assignments into manageable stages, demonstrate examples of successful work, allow students to revise their products, and provide feedback that emphasizes strategy and progress. These practices combine pedagogical competence and self-efficacy development in a single learning process.

The practical implication of this study is that schools should design improvement programs that target both teachers and students. For teachers, professional development should focus on interactive learning strategies, differentiated instruction, formative assessment, and the use of digital media in vocational learning. For students, guidance programs should support confidence, persistence, goal setting, and learning reflection. Schools can also encourage peer mentoring and teacher learning communities so that instructional innovation becomes a shared practice rather than an individual effort. Through these integrated strategies, learning interest can be developed more consistently.

5. CONCLUSION

This study concludes that pedagogical competence, self-efficacy, and students' learning interest among Grade X MPLB students at SMK Negeri 1 Bandung are in the high category. Pedagogical competence has a positive and significant effect on learning interest, and self-efficacy also has a positive and significant effect on learning interest. Simultaneously, the two predictors explain 62.7% of students' learning interest. These findings show that students' learning interest is shaped by the combination of teacher instructional competence and students' confidence in their own ability to learn.

The findings restate the importance of viewing learning interest as a shared responsibility between teachers, students, and schools. Teacher pedagogical competence can create meaningful learning situations, while students' self-efficacy can strengthen persistence and active participation. The study also indicates that the lowest indicators should become priorities for improvement. Teachers need to strengthen educative learning activities, while students need support to strengthen confidence when facing difficult learning tasks. Attention in learning also needs to be improved through more engaging learning design and better student learning regulation.

DOI: https://doi.org/10.17509/jpm.v11i2.90397
p- ISSN 2686-5491 e- ISSN 2656-4734

For teachers, the study recommends the use of interactive, contextual, and student-centered learning activities. Teachers are encouraged to use varied methods, digital media, collaborative tasks, simulations, and formative feedback that help students understand the relevance of learning to vocational practice. Teachers should also help students build self-efficacy by providing clear learning targets, manageable challenges, recognition of progress, and opportunities for reflection.

Table 9. Practical Recommendations Based on Findings

Target	Priority issue	Recommended action
Teachers	Educative learning activities need strengthening	Use contextual tasks, simulations, digital media, and formative feedback related to office management practice
Students	Self-efficacy strength needs support	Provide gradual challenges, mastery experiences, reflection, and peer support
School	Pedagogical improvement must be systematic	Develop teacher learning communities, peer observation, and training in interactive learning
Future researchers	The model excludes other possible predictors	Add learning environment, parental support, digital learning media, or school climate in broader samples

Note. Recommendations are derived from the lowest indicators and regression results.

For schools, professional development programs should prioritize pedagogical competence, especially in designing meaningful learning activities and using instructional media. Schools can develop mentoring, peer observation, and teacher learning communities to improve teaching quality. Student guidance programs should include activities that develop confidence, persistence, and learning strategies. For future researchers, this study can be expanded by including other variables such as learning environment, parental support, peer support, digital learning media, school climate, or learning motivation. Future research may also use mixed methods or broader samples to obtain deeper and more generalizable findings.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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