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THE RELATIONSHIP BETWEEN TEACHERS' TEACHING SKILLS AND THE ECONOMICS LEARNING OUTCOMES OF ELEVENTH-GRADE STUDENTS AT SMK NEGERI 1 LOLOTUA IN THE 2021/2022 ACADEMIC YEAR

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ABSTRACT

This study examines the relationship between teachers' teaching skills and the economics learning outcomes of eleventh-grade students at SMK Negeri 1 Lolotua in the 2021/2022 academic year. Using a quantitative correlational design, 50 of 355 students were selected by random sampling from each eleventh-grade class. Teaching skills were measured with a 20-item student-perception questionnaire covering eight basic teaching skills, and learning outcomes on National Income with a 20-item test (score range 0–100). Data were analyzed using Product Moment correlation and a t-test at α = 0.05. The mean scores were 79.16 for teaching skills and 78.90 for learning outcomes. The correlation coefficient of 0.426 (calculated t-value = 3.26 > critical t-value = 2.011; p ≈ 0.002) indicates a significant positive relationship of moderate strength, with about 18% shared variance (r^2 = 0.18). These findings highlight the importance of developing basic teaching skills in SMK economics instruction, although they do not establish causality.

Keywords: *Teachers' Teaching Skills, Economics Learning Outcomes, Teacher Competence, Vocational High School Students, Economics Instruction*

1. INTRODUCTION

Teachers occupy a central position in the learning process because they not only deliver subject matter but also design learning activities, manage the classroom, provide feedback, and assess the attainment of learning objectives. In this study, teaching skills refer to the teacher's ability to carry

out instructional actions that enable learning to proceed effectively and efficiently. They are operationalized as eight basic teaching skills: questioning, providing reinforcement, introducing variation, explaining, opening and closing lessons, guiding small-group discussions, managing the classroom, and teaching small groups and individuals. These skills are particularly relevant to economics, in which students must not only recall concepts but also understand how concepts are interrelated and perform calculations.

International research shows that instructional quality is associated with learning outcomes, although the strength of the association varies by context, subject, and measurement. Blömeke et al. (2022) showed that teacher competence relates to students' learning progress largely through the instructional quality actually enacted in the classroom. Teachers' pedagogical-psychological knowledge predicts students' perceptions of classroom management and of the quality of teacher explanations (Hollenstein & Brühwiler, 2024), and teacher support, disciplinary climate, and cognitive activation are positively associated with mathematics achievement in several European countries (Liu et al., 2024). Instructional delivery, including communication, questioning and discussion techniques, and teacher responsiveness, was positively associated with English scores (Engida et al., 2024), and science teachers' pedagogical content knowledge predicted student achievement (She et al., 2025).

The evidence, however, is not uniform. Instruction that delegates learning to students without adequate guidance shows no meaningful relationship with achievement (Bortes & Giota, 2024); not all teaching characteristics predict achievement (Neugebauer & Prediger, 2023); subject-specific professional knowledge does not always yield direct learning gains (Wittwer et al., 2025); and associations between instructional quality and outcomes depend on whether quality is rated by teachers, students, or external observers (Jerrim et al., 2025). What matters, therefore, is how teacher capabilities are enacted in specific classrooms and subjects.

In Indonesia, teachers' pedagogical competence has been linked to learning outcomes in mathematics (Permatasari et al., 2022), social studies (Sintya et al., 2023), and Indonesian language (Pratiwi & Megiati, 2023), as well as in vocational and other school settings (Khofifah & Ulfah, 2023; Pardede et al., 2024; Soro et al., 2024). The closest study, Permata and Sojanah (2024), found that teaching skills were positively related to the learning outcomes of eleventh-grade students at SMK Pasundan 1 Bandung. Most of these studies, however, treat pedagogical competence as a broad construct and examine elementary schools or non-economics subjects. Evidence is still scarce on how students' perceptions of the eight basic teaching skills relate to achievement

in a specific, calculation-intensive economics topic such as National Income in vocational high schools.

This gap is relevant to SMK Negeri 1 Lolotua, where preliminary observation showed that some students were inattentive during economics lessons and that learning outcomes varied considerably among students. National Income requires students to distinguish closely related aggregates (GDP, GNP, NNI, PI, DI, and per capita income) and to perform calculations, so the quality of teacher explanation, questioning, and guidance is likely to matter. Accordingly, this study aimed to examine the relationship between teachers' teaching skills, as perceived by students, and the economics learning outcomes of eleventh-grade students on the topic of National Income at SMK Negeri 1 Lolotua in the 2021/2022 academic year. The hypothesis was that there is a positive and significant relationship between the two variables. The study contributes subject-specific correlational evidence from a vocational high school that can inform the development of economics teachers' basic teaching skills; given its design, it does not test causal effects.

2. RESEARCH METHODE

This study used a quantitative approach with a correlational design to examine the relationship between teachers' teaching skills (X) and economics learning outcomes (Y). The data were originally collected for an undergraduate thesis. The population comprised all 355 eleventh-grade students at SMK Negeri 1 Lolotua in the 2021/2022 academic year. A sample of 50 students (approximately 14% of the population) was drawn by random sampling from each eleventh-grade class. AUTHOR TO COMPLETE: number of eleventh-grade classes, number of students drawn from each class, whether the allocation was proportional to class size, and the randomization procedure (e.g., lottery or random-number table).

Teachers' teaching skills were measured with a 20-item closed-ended questionnaire completed by the students; Variable X therefore reflects students' perceptions of their economics teacher's skills. The items covered the eight basic teaching skills listed above. AUTHOR TO VERIFY: each item used a five-point scale scored 1–5, giving a possible total of 20–100. While preparing this article, an inconsistency was found in the thesis between the written description of the response-option weights and the scores recorded in the data tabulation. AUTHOR TO COMPLETE: state the nature of the inconsistency, e.g., the description stated one set of weights while the tabulation used another. To avoid altering the raw data retrospectively, all analyses used the item scores exactly as tabulated for the 50 respondents. Because Pearson's correlation coefficient is unaffected by a uniform linear rescaling of scores (e.g., shifting every response option by the same amount),

such a re-weighting would not change r or the t-value; the absolute level of the teaching-skills scores, however, should be interpreted with caution.

Economics learning outcomes were measured with a 20-item test on National Income. The test blueprint covered the concepts of national income, Gross Domestic Product (GDP), Gross National Product (GNP), Net National Income (NNI), Personal Income (PI), Disposable Income (DI), and per capita income, as well as the calculation of GNP, PI, NNI, and per capita income. Each correct answer scored 5 and each incorrect answer 0, giving a possible range of 0–100.

AUTHOR TO COMPLETE (validity and reliability): describe how the questionnaire and the test were validated (e.g., expert judgment and item-total Product Moment correlation, with items retained when the calculated r exceeded the critical r for the try-out sample) and report the reliability coefficients (e.g., Cronbach's alpha for the questionnaire and KR-20 for the test). If these tests were not conducted in the original study, state this explicitly here and in the limitations.

Data were collected after research permission was obtained, through preliminary observation, administration of the questionnaire and the test, and tabulation of each respondent's X and Y scores. Raw tabulations are not reproduced; Tables 1 and 2 report the descriptive statistics and the summary values used in the analysis. AUTHOR TO COMPLETE (assumption tests): report the normality test (e.g., Kolmogorov–Smirnov or Shapiro–Wilk) and the linearity test for X and Y, with their p-values. If they were not performed, state this and note it as a limitation.

The relationship was analyzed using Pearson's Product Moment correlation, computed from ΣX, ΣY, ΣX^2, ΣY^2, and ΣXY, and its significance was tested with a t-test, $t = r\sqrt{(n-2)}/\sqrt{(1-r^2)}$, with $df = 48$ at $\alpha = 0.05$ (two-tailed). The hypothesis was accepted if the calculated t-value was greater than or equal to the critical t-value. To aid interpretation, the p-value, the coefficient of determination (r^2), and a 95% confidence interval for r (Fisher's z transformation) were derived from r and N. The strength of the correlation was interpreted against Cohen's (1988) benchmarks of 0.10 (small), 0.30 (medium), and 0.50 (large).

3. RESULT AND DISCUSSION

Result

Table 1 summarizes the descriptive statistics. Teaching-skills scores (X) ranged from 76 to 82 ($M = 79.16$, $SD = 1.93$), indicating that students rated their teachers' skills relatively highly and fairly uniformly. Economics learning outcomes (Y) ranged from 70 to 90 ($M = 78.90$, $SD = 5.18$): most students answered the majority of the National Income items correctly, but with

greater variation than in X. Because the test included both conceptual and computational items, these scores reflect the ability to apply concepts as well as to recall terminology.

Table 1. Descriptive statistics of research variables

Variable	N	Total Score	Mean	SD	Min.	Max.
Teachers' teaching skills (X)	50	3,958	79.16	1.93	76	82
Economics learning outcomes (Y)	50	3,945	78.90	5.18	70	90

Note. SD = standard deviation; Min. = minimum score; Max. = maximum score.

Table 2 presents the correlation analysis. The correlation coefficient was 0.426, indicating a positive relationship of moderate strength: students who rated their teachers' teaching skills more highly tended to obtain higher economics scores. The calculated t-value (3.26) exceeded the critical t-value (2.011; df = 48, $\alpha = 0.05$), with $p \approx 0.002$, so the hypothesis was accepted. The coefficient of determination ($r^2 = 0.18$) indicates that about 18% of the variance in learning outcomes was shared with perceived teaching skills. The 95% confidence interval for the correlation coefficient (0.17 to 0.63) is wide, reflecting the modest sample size.

Table 2. Results of the correlation analysis between teachers' teaching skills and economics learning outcomes

Component	Value
Number of respondents (N)	50
ΣX	3,958
ΣY	3,945
ΣX^2	313,498
ΣY^2	312,575
ΣXY	312,495
Correlation coefficient (r)	0.426
Coefficient of determination (r^2)	0.18
95% confidence interval for r	0.17 to 0.63
Calculated t-value	3.26
Critical t-value (df = 48, $\alpha = 0.05$, two-tailed)	2.011
p-value	0.002
Decision	Significant; hypothesis accepted

Discussion

The main finding is a positive, moderate, and statistically significant correlation between students' perceptions of teachers' teaching skills and their economics learning outcomes. In practical terms, a correlation coefficient of 0.426 means that teaching skills are a meaningful but partial correlate of achievement on National Income: about 18% of the variance in test scores is shared with perceived teaching skills, while the remainder is associated with other factors such as motivation, prior mathematical ability, instructional media, and the home and school environment (Pardede et al., 2024). The relationship is noteworthy given the narrow range of teaching-skills scores (76–82); restricted variability tends to attenuate correlations, so the association could be stronger in a more heterogeneous setting, although the present data cannot confirm this.

A plausible explanation lies in the nature of the topic. National Income requires students to distinguish closely related aggregates (GDP, GNP, NNP, NNI, PI, and DI), to understand how each is derived from the previous one, and to carry out multi-step calculations. Explaining skills are therefore critical: a teacher who sequences the derivation from GDP to DI and illustrates each step with a worked example reduces the likelihood that students confuse similar terms. Questioning skills allow the teacher to check understanding at each step, for example by asking why net factor income from abroad separates GDP from GNP, and to correct misconceptions before they accumulate. Reinforcement supports persistence in calculation tasks in which errors are common, and classroom management protects the time needed for guided practice, which is important in a school where some students were observed to be inattentive. These mechanisms are consistent with evidence that the quality of explanations and classroom management relates to achievement (Hollenstein & Brühwiler, 2024) and that disciplinary climate and cognitive activation are associated with mathematics achievement (Liu et al., 2024), a subject that, like National Income, combines conceptual and computational demands. Because teaching skills were measured as a composite score, however, the relative contribution of each skill could not be estimated.

The findings also align with research on teacher communication and the use of class time. Wanzek et al. (2023) found that second-grade teachers who used a higher proportion of academic words had students with greater end-of-year vocabulary; by analogy, economics teachers who use and explain technical terms precisely may help students master the specialized vocabulary of national accounts. Engida et al. (2024) reported that instructional delivery, including questioning and discussion techniques, was positively associated with student scores, and Burgess et al. (2023) showed that the allocation of class time across activities is related to achievement. Because these studies

were conducted in other subjects and countries, they support the direction of the present finding rather than its magnitude.

Within Indonesia, the direction of the finding agrees with studies linking pedagogical competence to learning outcomes (Permatasari et al., 2022; Sintya et al., 2023; Pratiwi & Megiati, 2023; Khofifah & Ulfah, 2023) and with Permata and Sojanah (2024), who found a positive relationship between teaching skills and learning outcomes in another vocational high school. The present study differs in three respects. First, it focuses on a single calculation-intensive economics topic rather than on general subject grades, which ties the finding to specific instructional demands. Second, it operationalizes teaching skills through the eight basic teaching skills rather than through pedagogical competence as a broad construct. Third, it reports the effect size and its uncertainty, showing that the relationship is moderate rather than dominant. The study thus adds subject-specific evidence from a vocational school and cautions against overstating the role of teacher skills.

International studies help explain why the relationship is moderate rather than strong. Teacher knowledge relates to learning progress mainly through enacted instructional quality (Blömeke et al., 2022), subject-specific professional knowledge does not always produce direct learning gains (Wittwer et al., 2025), and not all teaching characteristics predict achievement (Neugebauer & Prediger, 2023). She et al. (2025) found that science teachers' pedagogical content knowledge assessed with a video-based test predicted achievement better than knowledge assessed with a text-based test, suggesting that measures closer to classroom practice capture more of the relationship; the present study, which relied on students' reports of observable teacher behavior, is consistent with this view. Bortes and Giota (2024) further showed that student-centered instruction without adequate guidance was not meaningfully related to achievement, which is relevant to vocational classrooms, where student activity must still be structured by explanation and guidance.

The measurement source also matters. Jerrim et al. (2025) showed that associations between instructional quality and outcomes differ depending on who rates instructional quality. Student ratings reflect the instruction that students actually experience, but they may be influenced by students' liking for the teacher or by their own performance, so part of the observed correlation may reflect shared perception rather than teaching quality alone. Practically, professional development for SMK economics teachers should include targeted practice in explaining multi-step concepts, questioning for understanding, providing reinforcement during calculation tasks, and managing the classroom to protect practice time. Academic supervision has been shown to improve teachers' teaching skills (Suarniti, 2023) and could be combined with student feedback and classroom observation for this purpose.

This study has several limitations. The sample was small (N = 50) and drawn from a single school, which limits generalization; teaching skills were measured through student perceptions; the correlational design does not permit causal inference; and the composite score does not show which skills matter most. AUTHOR: add here, if applicable, that instrument validation and statistical assumption tests were not reported. Future research should use larger, multi-school samples, combine student ratings with direct classroom observation, analyze the eight skills separately, and control for variables such as motivation, prior achievement, and family background.

4. CONCLUSION

This study found a positive, moderate, and significant relationship between students' perceptions of their teachers' teaching skills and the economics learning outcomes of eleventh-grade students at SMK Negeri 1 Lolotua on the topic of National Income, thereby answering the research question and supporting the hypothesis. The finding indicates an association rather than a causal effect: teaching skills are an important but partial correlate of achievement.

The main contribution of the study is subject-specific evidence that, in a vocational high school, the basic teaching skills students experience are linked to their mastery of a calculation-intensive economics topic. For economics instruction in SMK, this implies that teacher development and academic supervision should go beyond subject-matter mastery and strengthen how teachers explain, question, reinforce, and manage practice when teaching multi-step concepts such as National Income. Future studies should use larger samples from several schools, combine student ratings with classroom observation, and analyze each teaching skill separately.

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