

Tax Knowledge, Tax Literacy, Learning Motivation, and Students' Tax Understanding

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Abstract

This study examines how tax knowledge, tax literacy, and learning motivation relate to tax understanding among tax accounting students at Politeknik Negeri Lampung. Primary data from 122 students in the 2022 and 2023 cohorts, selected through purposive sampling, were collected using a 16-item Likert-scale questionnaire and analyzed using multiple linear regression. Tax knowledge ($\beta = 0.408$, $p < 0.001$) and learning motivation ($\beta = 0.268$, $p = 0.001$) were positively and significantly associated with tax understanding, whereas tax literacy had a positive but nonsignificant coefficient ($\beta = 0.166$, $p = 0.061$). Jointly, the three variables were significant and explained 44.1% of the variation in tax understanding. Tax understanding is associated mainly with conceptual knowledge and sustained motivation to learn, while tax literacy acts as a supporting capability. The findings direct study programs to prioritize conceptual reinforcement and learning motivation and to embed literacy activities in case-based application. The purposive sample comes from one study program and all variables were measured with short self-report scales in a cross-sectional questionnaire, so the results indicate associations and cannot be generalized to all students.

Keywords: Learning Motivation, Tax Knowledge, Tax Literacy, Tax Understanding, Vocational Students

1. INTRODUCTION

Tax understanding equips tax accounting students to interpret obligations, distinguish tax categories, and apply administrative and calculation procedures. These capabilities matter because tax work connects concepts, legal requirements, and practical decisions. [Bornman and Ramutumbu \(2019\)](#) distinguish general, procedural, and legal tax knowledge. This distinction indicates that students need to understand why an obligation applies, how to fulfill it, and which provisions support the required action. Tax education therefore needs to connect the information students acquire with their ability to explain and use it ([Pratama, Sidik, Asliana, Wijaya, & Astuti, 2026](#)).

Digital services add to educational demands. [Bornman and Wassermann \(2020\)](#) show that participation in the digital economy requires tax knowledge suited to the transactions involved and the obligations they create for taxpayers. For students, accessing information and using digital services are part of the learning process. Recognizing service features, understanding applicable provisions, and solving tax problems are all distinct activities ([Khamees, 2026](#)). Their relationship deserves attention so that teaching extends beyond information recognition and system operation.

Evidence from higher education supports the importance of tax education. [Putro and Tjen \(2020\)](#) compared Indonesian university students' tax knowledge in relation to tax education, while [Kurniawan \(2020\)](#) demonstrated the role of tax education in developing knowledge and compliance. [Abbas, Tjen, and Wicaksono \(2021\)](#) show that prior familiarity with taxation matters in an education program focused on awareness. In vocational business education, [Cechovsky \(2020\)](#) identified misconceptions concerning tax principles and categories that can inform curriculum development. [Mustapha, Olaleye, Olanike, and Olowookere \(2021\)](#) also identified non-accounting students' need for education about tax policies, rules, and culture. These findings position tax understanding as an educational issue that warrants examination of students' learning characteristics.

Tax knowledge, tax literacy, and learning motivation offer complementary explanations. Knowledge provides a conceptual foundation, literacy helps students locate and use information, and motivation sustains engagement in learning. [Moučková and Vitek \(2018\)](#) examined tax literacy among university students, while [van Laar, van Deursen, van Dijk, and de Haan \(2017\)](#) distinguished digital

information skills from broader problem-solving skills. [Alexander, Balavac-Orlic, Lymer, and Mukherjee \(2023\)](#) emphasized tax education for young adults beginning to engage with the tax system. Examining these three variables together can therefore provide a more focused account of the learning dimensions associated with students' tax understanding.

Previous studies have mostly directed these variables toward outcomes other than understanding. Research on tax awareness evaluates how education shapes young people's recognition of taxation ([Abbas et al., 2021](#); [Alexander et al., 2023](#)). Research on compliance relates tax knowledge, education level, or literacy to the fulfillment of tax obligations ([Melando, Irawan, & Ridwansyah, 2022](#); [Noreen, & Kristanto, 2021](#); [Susanti, Susilowibowo, & Hardini, 2020](#)). Awareness and compliance describe attitudes and behavior toward tax obligations, whereas tax understanding describes what students are able to interpret and apply as a result of learning. Therefore, findings on the former cannot be transferred directly to the latter.

Studies involving students show a similar pattern. [Irfandi, Malikah, and Mawardi \(2023\)](#) and [Yakin and Widayati \(2022\)](#) examined motivation, tax course knowledge, and tax literacy, but with interest in a tax career as the outcome. At Politeknik Negeri [Handayani, Dewi, and Kurniawan \(2025\)](#) investigated career interest, whereas [Safitri, Ridwansyah, and Kurniawan \(2024\)](#) examined interest in tax certification courses. Studies that place understanding as the outcome remain limited: [Astari and Sinarwati \(2024\)](#) examined tax knowledge, motivation, and learning concentration without tax literacy, while [Cahya and Listiadi \(2021\)](#) addressed accounting understanding instead of tax understanding. Among these studies, tax literacy has been tested alongside knowledge and motivation only for career interest, and tax understanding has been tested without literacy.

This gap matters because the three variables are conceptually close but not interchangeable. Tax knowledge refers to mastery of provisions, collection systems, and calculation procedures, whereas tax literacy refers to the ability to access, analyze, and use tax information in real situations, including digital tax services. [Xu, Liu, and Kim \(2023\)](#) distinguish actual tax literacy from confidence in tax knowledge, and [Moučková and Vitek \(2018\)](#) show that course exposure and practical experience need to be assessed separately. If literacy is tested without knowledge, its coefficient may simply reflect conceptual mastery, if literacy is omitted, the contribution of information-use skills to understanding remains unknown. Examining literacy together with knowledge and learning motivation makes it possible to identify whether literacy relates to understanding beyond what students already know and beyond their willingness to keep learning.

The question is particularly relevant for vocational students. Vocational education emphasizes practice and work readiness, and the academic environment of the Tax Accounting Study Program at Politeknik Negeri Lampung includes practice-oriented tax activities such as annual tax return education and assistance ([Damayanti, Pentiana, Anggraini, Kurniawan, Mareta, Indriyani, & Syahrial, 2025](#)) and training on current VAT rules and tax invoices in coretax ([Mareta, Damayanti, Nurmala, Pentiana, Anggraini, Kurniawan, & Syahrial, 2025](#)). Practice-oriented exposure of this kind can develop skills in using tax information and systems without necessarily deepening conceptual understanding. In addition, students in the 2022 and 2023 cohorts have completed their tax courses and are moving into field practice and final assignments, a stage at which formal classroom learning is limited, and continued understanding depends more on independent learning. Whether literacy built through practice, knowledge built through coursework, and the motivation to keep learning each relate to understanding is therefore an open empirical question in this setting.

Accordingly, this study examines tax knowledge, tax literacy, and learning motivation in relation to tax understanding, both individually and jointly. Its novelty lies in three respects that distinguish it from previous studies: it treats tax understanding, and not awareness, compliance, or career interest, as the outcome, it adds tax literacy to the knowledge–motivation model of understanding, so that the partial role of literacy can be separated from that of knowledge, and it tests the model on vocational students in two cohorts who have completed their tax courses. Its empirical contribution is to identify the relationship of each variable within one model. Its practical contribution

is to inform study programs' emphasis on conceptual learning, motivation, and the use of tax information linked to application exercises.

2. LITERATURE REVIEW

2.1 Theoretical Framework and Tax Understanding

The Theory of Planned Behavior (TPB) states that behavior is preceded by intention, which is formed by three components, such as attitude toward the behavior, subjective norms, and perceived behavioral control ([Ajzen, 1991](#)). In this study, the behavior of interest is students' sustained effort to learn and make sense of taxation, and tax understanding is treated as the learning outcome of that effort, as follows each explanatory variable was linked to one TPB component. Tax knowledge relates to attitude toward behavior, students who master tax concepts are more likely to evaluate learning taxation as useful and important, and this favorable evaluation encourages deeper engagement with the material. Tax literacy relates to subjective norms, the ability to access and use tax information develops within an academic environment in which lecturers, learning materials, and digital tax systems signal that being tax-informed is expected of prospective tax professionals. Learning motivation relates to perceived behavioral control: motivated students feel more capable of dealing with complex and changing tax material and are therefore more confident in continuing to learn.

Under TPB, these three components work together to strengthen the intention to learn, and a stronger intention is expected to be reflected in better tax understanding. This reasoning yields the expectation that each variable is positively related to understanding (H_1 – H_3) and that the three are jointly related to it (H_4). The empirical model places tax knowledge, tax literacy, and learning motivation as explanatory variables and tax understanding as the dependent variable. Understanding encompasses general tax provisions and procedures, distinctions between tax categories, calculation processes, and tax functions. Intention itself is not measured; TPB therefore serves as the explanatory framework for the hypothesized relationships, while the regression tests the direct association of each construct with understanding. The distinction among conceptual content, information use, and motivation is consistent with [Bornman and Ramutumbu \(2019\)](#), who identify several dimensions of tax knowledge, and [Moučková and Vitek \(2018\)](#), who measure tax literacy among university students. For students, understanding concerns the meaning of the material they learn. [Cečovský \(2020\)](#) highlights the importance of explaining tax principles and their rationale in curriculum development. Tax understanding in this study connects conceptual content, information use, and students' engagement with tax learning.

2.2 Tax Knowledge and Tax Understanding

Tax knowledge comprises information about tax provisions, collection systems, tax functions, and calculation procedures. The indicators in this study cover general tax provisions and procedures, the self-assessment system, revenue and regulatory functions, and the application of rates to taxable objects. This knowledge enables students to identify the elements of a problem before selecting an appropriate procedure. Recognizing the relationships among taxable objects, rates, and administrative obligations gives students a clearer basis for explaining and applying tax material ([Ratnaningtyas, Martaleni, & Wijayanti, 2026](#); [Hasanah, Kurniawan, & Hendri, 2025](#)).

[Putro and Tjen \(2020\)](#) and [Abbas, Tjen, and Wicaksono \(2021\)](#) provide educational context for the role of prior tax learning. [Astari and Sinarwati \(2024\)](#) provide more direct evidence of a positive and significant relationship between tax knowledge and students' tax understanding. [Melando, Irawan, and Ridwansyah \(2022\)](#) examine knowledge in relation to taxpayer compliance. These studies establish the relevance of knowledge to education and tax obligations, while their empirical outcomes remain distinct according to each study's purpose.

For tax accounting students, knowledge acquired through courses supports case interpretation and explanations of calculation procedures. This capability accords with vocational education's connection between theory and application. From the TPB perspective, adequate tax knowledge forms a positive attitude toward learning taxation, and this attitude strengthens students' intention to

understand the material more deeply. The conceptual mechanism and evidence concerning student understanding suggest that tax knowledge is related to a stronger understanding. This reasoning supports the first hypothesis.

H₁: Tax knowledge is associated with tax understanding

2.3 Tax Literacy and Tax Understanding

Tax literacy is the ability to locate, analyze, and use tax information for decision-making. The study's indicators cover information analysis, digital systems, awareness of rights and responsibilities and informed decisions. [Moučková and Vitek \(2018\)](#) examined literacy among university students, while [Irfandi et al. \(2023\)](#) and [Yakin and Widayati \(2022\)](#) described tax literacy as the ability to apply tax information effectively and relate it to students' interest in tax careers. These studies establish the relevance of assessing both tax information and its application, although their populations and outcomes differ from those of the present study.

Studies on tax literacy distinguish it from related outcomes. [Alexander et al. \(2023\)](#) examined tax literacy and morale among young adults, while [Xu et al. \(2023\)](#) distinguished literacy from students' confidence in tax knowledge. [Moučková and Vitek \(2018\)](#) report different associations for tax courses and filing experience, depending on the tax topic assessed. These findings indicate that the relationship between literacy and tax outcomes depends on its measurement and context. Therefore, literacy as a predictor of understanding warrants separate examination.

Conceptually, students who can assess sources and use appropriate information have better resources for understanding tax cases. Literacy can connect learned provisions with administrative procedures and practical decisions. [Alexander et al. \(2023\)](#) emphasize tax education linked to young adults' experiences, while [Xu et al. \(2023\)](#) demonstrate the relevance of education and financial experience to student literacy. From the TPB perspective, an academic environment that provides access to tax information and expects students to use it shapes the normative belief that understanding taxation is important, which encourages students to study tax information more actively. Based on this, the second hypothesis concerns students' ability to process tax information.

H₂: Tax literacy is associated with tax understanding

2.4 Learning Motivation and Tax Understanding

Learning motivation initiates, directs, and sustains learning activities. The study's indicators include the desire to succeed, learning needs, future aspirations, and recognition and interest in learning activities. [Howard et al. \(2021\)](#) synthesized evidence linking different forms of student motivation with performance and persistence, while [Panadero \(2017\)](#) placed motivation within self-regulated learning. In taxation, motivation helps students attend to the material, revisit concepts they have yet to master, and seek further explanations when cases are difficult ([Iwuno, Nwosu, Onuigbo, & Achinike, 2026](#)). These activities connect motivation to learn with the development of understanding.

[Astari and Sinarwati \(2024\)](#) found a positive relationship between self-motivation and tax understanding. [Cahya and Listiadi \(2021\)](#) examined learning motivation as a moderator of accounting understanding, and [Theobald \(2021\)](#) reported that self-regulated learning training can improve university students' motivation and academic performance. These findings concern different outcomes and designs, the present study specifically tests the partial association of motivation with self-reported tax understanding.

For students who have completed tax courses, motivation is relevant for maintaining learning after classroom instruction. The desire to master competencies and prepare for a career can encourage students to connect their knowledge with case study exercises. Consistent learning creates opportunities to revisit errors and clarify concepts. From the TPB perspective, learning motivation reflects perceived behavioral control: motivated students feel more capable of coping with complex

and changing tax materials, which strengthens their intention to keep learning. This reasoning supports the formulation of the third hypothesis.

H₃: Learning motivation is associated with tax knowledge

2.5 Joint Relationship

Knowledge, literacy, and motivation represent different aspects of tax education. Students need conceptual foundations to identify problems, relevant information to interpret the provisions, and motivation to sustain their efforts. Joint examination allows each dimension's relationship with understanding to be assessed while accounting for the others. The joint hypothesis concerns the explanatory variables collectively, therefore, the F-test decision is considered alongside the partial results for each predictor.

[Astari and Sinarwati's \(2024\)](#) research on student understanding, together with [Cechovsky's \(2020\)](#) work on tax misconceptions and [Panadero's \(2017\)](#) synthesis of self-regulated learning, provides a basis for examining cognitive and motivational dimensions together. This study retains understanding as the outcome and incorporates literacy as the information-use dimension. Within the TPB, attitude, subjective norms, and perceived behavioral control operate simultaneously in forming intention, therefore, the three variables are expected to relate to understanding jointly as well as individually. This reasoning supports the fourth hypothesis.

H₄: Tax knowledge, tax literacy, and learning motivation are jointly associated with tax understanding

3. RESEARCH METHODOLOGY

3.1 Design, Population, and Sample

This study adopts a quantitative approach using primary questionnaire data collected in 2026. The unit of analysis was an active student in the 2022 or 2023 cohort of the Tax Accounting Study Program at Politeknik Negeri Lampung. The population comprised 270 students, such as 150 from the 2022 cohort and 120 from the 2023 one. The selection of these cohorts aligns with the study's focus on students who have completed tax courses and possess relevant learning experiences to respond to statements regarding tax knowledge, literacy, motivation, and understanding.

The sample was selected through purposive sampling, that is, sampling based on specific considerations so that respondents hold the information required by the research problem ([Sugiyono, 2018](#)). This technique was chosen because the questionnaire statements concern tax provisions, collection systems, and calculation procedures, which can be assessed meaningfully only by students who have studied them. Respondents were therefore required to be active students in the two cohorts, to have completed tax courses such as general tax provisions and procedures, income tax, or Value Added Tax (VAT), and to be willing to complete the questionnaire. Because selection depended on these criteria and on willingness to respond, the sample is a non-probability sample, and this is taken into account in interpreting the results. The minimum sample size was determined using Slovin Formula 1:

$$n = N / (1 + N \times e^2) \quad (1)$$

where N is the population size and e is the margin of error. With N = 270 and e = 10%, the formula gives approximately 73 respondents, which the research design rounded up to a minimum target of 75. Data were collected online through Google Forms, and 122 questionnaires met the processing criteria, comprising 62 students from the 2022 cohort and 60 from the 2023 cohort. The number analyzed exceeds the minimum target and covers 45.2% of the population. The formula was used only to set a minimum number of respondents because the selection was purposive; therefore, the

sample size alone does not guarantee statistical representativeness. No questionnaire was excluded from the analysis. Table 1 summarizes the population and questionnaires collected from each cohort.

Table 1. Population and questionnaire collection

Component	Number
2022 cohort population	150
2023 cohort population	120
Total population	270
Questionnaires collected	122
Not meeting processing criteria	0
Questionnaires analyzed	122

3.2 Variable Definitions and Operationalization

Tax knowledge (X_1), tax literacy (X_2), and learning motivation (X_3) were the independent variables, and tax understanding (Y) was the dependent variable. Each variable was measured using four statements, producing a 16-item questionnaire. Responses used a five-point Likert scale, such as strongly disagree = 1, disagree = 2, neutral = 3, agree = 4, and strongly agree = 5. Each variable score was the sum of its four item responses, with a theoretical range of 4–20. Higher scores indicate greater agreement with the variable's indicators. The operationalization of knowledge and understanding draws on the tax knowledge dimensions discussed by [Bornman and Ramutumbu \(2019\)](#). The literacy indicators reflect the questionnaire's focus on information use, consistent with the tax literacy literature by [Moučková and Vitek \(2018\)](#), whereas the motivation items concern goals and sustained engagement ([Howard, Bureau, Guay, Chong, & Ryan, 2021](#)). Table 2 summarizes the indicators used in the questionnaire.

Table 2. Variable operationalization

Variables	Indicators	Items
Tax knowledge (X_1)	General tax provisions and procedures, collection system, tax functions, calculation procedures	$X_{1.1}$ – $X_{1.4}$
Tax literacy (X_2)	Information analysis, digital systems, rights and responsibilities, decision-making	$X_{2.1}$ – $X_{2.4}$
Learning motivation (X_3)	Desire to succeed, learning needs, future aspirations, recognition and engaging activities	$X_{3.1}$ – $X_{3.4}$
Tax understanding (Y)	Understanding general provisions and procedures, tax classification, technical capability, understanding tax functions	Y_1 – Y_4

3.3 Data Analysis and Hypothesis Testing

Data were analyzed using IBM SPSS Statistics 27. First, descriptive statistics summarize the number of observations, minimum, maximum, mean, and standard deviation. Second, instrument quality was evaluated using Pearson 's item–total correlations and Cronbach Alpha. An item meets the validity criterion when its correlation is positive and exceeds the critical r of 0.178 at 120 degrees of freedom and a 0.05 significance level. Reliability was assessed using Cronbach Alpha. The study adopted 0.60 as the minimum acceptable value [Ghozali \(2021\)](#) instead of the more common 0.70 because each construct is measured with only four items covering four different indicators, alpha depends on the number of items and on their homogeneity, so short scales of this kind tend to produce lower coefficients even when the items are adequately related ([Taber, 2018](#)). The threshold is treated as a lower bound and not as evidence of high reliability, values between 0.60 and 0.70 are interpreted as acceptable but modest, and the mean inter-item correlation of each scale is reported as a complementary indicator that does not depend on scale length.

Assumption checks include residual normality using the one-sample Kolmogorov–Smirnov test, multicollinearity using tolerance and the Variance Inflation Factor (VIF), and assessment of variance patterns through the residual scatterplot. The predictor–residual Spearman correlations available in the

research output are also reported as diagnostic information. The normality criterion is a significance value above 0.05. The multicollinearity criteria are tolerance above 0.10 and VIF below 10. Residual correlation significance was assessed at the 0.05 level, while heteroscedasticity was evaluated through the distribution of points in the scatterplot. Multiple linear regression evaluates the relationships between the three independent variables and tax understanding within one model. The research equation is as follows Formula 2:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \quad (2)$$

Y denotes tax understanding, X_1 tax knowledge, X_2 tax literacy, X_3 learning motivation, α the intercept, β_1 , β_2 , and β_3 the regression coefficients, and ε the error term. The t -test evaluates each predictor's partial relationship after accounting for the other predictors. The F-test evaluates the joint significance of the model. A hypothesis is supported when p is below 0.05. Unstandardized coefficients (B), standard errors, standardized coefficients (β), t , and p describe the partial results, R^2 and adjusted R^2 describe the variation in understanding scores explained by the model.

Relative comparisons among predictors use the standardized coefficients available in SPSS output. These coefficients express variables on a common scale and are therefore appropriate for comparing the magnitudes of the relationships within the model. B describes the change in the understanding score associated with a one-unit increase in a predictor, while the others are held constant. Partial and joint tests are presented separately so that the model significance does not replace the decision for each individual hypothesis.

4. RESULTS AND DISCUSSION

4.1 Respondent Characteristics

Table 3. Respondent characteristics

Characteristic	Category	Number	Percentage (%)
Gender	Men	15	12.3
	Women	107	87.7
Cohort	2022	62	50.8
	2023	60	49.2

Table 3 shows the respondents by gender and cohort. All 122 questionnaires that met the criteria were analyzed. The respondents comprised 15 men (12.3%) and 107 women (87.7%). By cohort, 62 respondents (50.8%) entered in 2022 and 60 (49.2%) entered in 2023. The two cohorts were nearly balanced within the research sample. These characteristics provide context for interpreting the findings among students who have studied taxation in the same study program.

4.2 Descriptive Statistics

Table 4. Descriptive statistics

Variables	N	Minimum	Maximum	Mean	Standard deviation
Tax knowledge	122	12	20	16.75	2.176
Tax literacy	122	11	20	17.13	2.174
Learning motivation	122	9	20	16.02	2.396
Tax understanding	122	10	20	16.56	2.307

Table 4 shows the descriptive statistics for these four variables. Tax knowledge had a mean of 16.75, a standard deviation of 2.176, and a range of 12–20. Tax literacy had the highest mean (17.13), with a standard deviation of 2.174 and a range of 11–20. Learning motivation had a mean of 16.02, a standard deviation of 2.396, and a range of 9–20. Tax understanding had a mean of 16.56, a standard deviation of 2.307, and a range of 10–20. All statistics were based on 122 observations.

The variables use the same number of items and scale range, allowing descriptive comparisons of their means. Literacy has the highest mean, while motivation exhibits the largest standard deviation and observed range. This pattern indicates variation in respondents' learning experiences and motivation. High means indicate generally positive responses to the indicators, whereas regression addresses the separate question of each score's relationship with understanding. Therefore, mean rankings were not used to determine hypothesis decisions.

4.3 Instrument Quality Tests

Table 5. Item validity and variable reliability

Component	X_1	X_2	X_3	Y
Item 1 correlation	0.661	0.759	0.711	0.701
Item 2 correlation	0.725	0.754	0.807	0.711
Item 3 correlation	0.683	0.675	0.718	0.693
Item 4 correlation	0.723	0.725	0.532	0.662
Cronbach Alpha	0.635	0.706	0.639	0.626

All items were reported at $p < 0.001$, critical $r = 0.178$. X_1 = knowledge, X_2 = literacy, X_3 = motivation, Y = tax understanding

Table 5 shows the item–total correlations showed that all 16 items met the study's validity criterion. The correlations ranged from 0.661 to 0.725 for tax knowledge, 0.675 to 0.759 for tax literacy, 0.532 to 0.807 for learning motivation, and 0.662 to 0.711 for tax understanding. All correlations were positive and exceeded the critical r of 0.178. The SPSS output reported $p < 0.001$ for each item. Therefore, all items were retained in the construction of the variable scores.

Cronbach alpha was 0.635 for tax knowledge, 0.706 for tax literacy, 0.639 for learning motivation, and 0.626 for tax understanding. All four values exceeded the 0.60 minimum adopted in the study, but only tax literacy reached the conventional 0.70 level. The coefficients for tax knowledge, learning motivation, and tax understanding were therefore modest and not treated as evidence of high internal consistency. Table 5 presents the item correlations and reliability together to show the basis for the scoring procedure used in the research.

Three features of the instrument explain the modest coefficients. First, each scale has only four items, and alpha rises with the number of items; therefore, short scales yield lower values than longer scales of similar quality (Taber, 2018). Second, the four items of each scale represent four different indicators, for example, general provisions, the collection system, tax functions, and calculation procedures for tax knowledge, thus, the items are deliberately heterogeneous and are not expected to correlate very highly. Third, the mean inter-item correlations are 0.323 for tax knowledge, 0.375 for tax literacy, 0.314 for learning motivation, and 0.309 for tax understanding, all within the 0.15–0.50 range recommended for scales measuring broad constructs (Clark & Watson, 2019). The items of each scale are thus adequately related, and the modest alpha values reflect scale length and breadth more than inconsistent responses. One item deserves note, $X_{3.4}$ has the lowest item–total correlation (0.532) and is the weakest item of the motivation scale, although it meets the validity criterion and was retained because it represents a separate indicator.

These coefficients have implications for measurement quality. Lower reliability means that each composite score contains more random measurement error, which tends to weaken observed correlations and regression coefficients and widen their standard errors. The significant results for tax knowledge and learning motivation were obtained despite this attenuation, whereas a coefficient close to the significance boundary, such as that of tax literacy ($p = 0.061$), should be read as an association that was not detected with the present instrument and not as evidence that no association exists. Tax understanding, the dependent variable, has the lowest alpha (0.626), therefore, part of the unexplained variation in the model may also reflect measurement error. The scales are therefore regarded as

adequate for testing associations at the group level but are not precise enough for assessing individual students, and longer multi-item scales are needed in further research.

4.4 Classical Assumption Tests

Table 6. Classical assumption test results

Test	Indicator	Result	Criterion
Residual normality	K-S; Asymp. Sig.	0.071, 0.197	$p > 0.05$
Residual normality	Monte Carlo Sig., 99% CI	0.132, [0.124, 0.141]	$p > 0.05$
Multicollinearity X_1	Tolerance, VIF	0.672, 1.489	Tol. > 0.10 , VIF < 10
Multicollinearity X_2	Tolerance, VIF	0.598, 1.673	Tol. > 0.10 , VIF < 10
Multicollinearity X_3	Tolerance, VIF	0.789, 1.267	Tol. > 0.10 , VIF < 10
Residual correlation X_1	Spearman ρ , p	-0.026, 0.773	$p > 0.05$
Residual correlation X_2	Spearman ρ , p	0.028, 0.764	$p > 0.05$
Residual correlation X_3	Spearman ρ , p	0.004, 0.966	$p > 0.05$

Spearman correlations used unstandardized residuals, as reported in the research output. CI = confidence interval.

Table 6 shows the Kolmogorov–Smirnov test yielded a statistic of 0.071 and an asymptotic significance value of 0.197. The output also reported a Monte Carlo significance value of 0.132, with a 99% confidence interval of 0.124–0.141. These significance values exceeded 0.05, therefore, the residuals met the normality criterion. The residual mean was 0.0000000, and the standard deviation was 1.70374166. This evaluation concerns the model residuals, which are consistent with the regression-testing procedure.

The tolerance values for tax knowledge, tax literacy, and learning motivation were 0.672, 0.598, and 0.789, respectively. Their VIF values were 1.489, 1.673, and 1.267. All satisfied the specified thresholds of tolerance above 0.10 and VIF below 10. Therefore, the checks did not indicate multicollinearity under the adopted criteria. The three predictors were retained to assess their partial relationships within the same model.

The predictor–residual Spearman correlations were -0.026 for knowledge, 0.028 for literacy, and 0.004 for motivation. Their significance values were 0.773, 0.764, and 0.966, respectively, all above 0.05. The residual scatterplot presented in the research output shows points without a clear systematic pattern. The distribution of points in this scatterplot does not show an apparent indication of heteroscedasticity. Table 6 summarizes the model assessments.

4.5 Regression Analysis and Hypothesis Testing

The regression yields an intercept of 2.149 and B coefficients of 0.433 for tax knowledge, 0.176 for tax literacy, and 0.258 for learning motivation. All predictor coefficients are positive. The estimated equation is as follows Formula 3:

$$Y = 2.149 + 0.433X_1 + 0.176X_2 + 0.258X_3 + \varepsilon \quad (3)$$

Table 7. Regression coefficients and partial tests

Variables	B	SE	β	t	p	Decision
Intercept	2.149	1.474	-	1.457	0.148	-
Knowledge (X_1)	0.433	0.088	0.408	4.922	< 0.001	H_1 supported
Literacy (X_2)	0.176	0.093	0.166	1.890	0.061	H_2 not supported
Motivation (X_3)	0.258	0.074	0.268	3.507	0.001	H_3 supported

B = unstandardized coefficient, SE = standard error, β = standardized coefficient. Decisions use $\alpha = 0.05$. SPSS significance of 0.000 is presented as $p < 0.001$.

Table 7 shows the coefficients, standard errors, standardized coefficients, and partial tests. Tax knowledge yields $t = 4.922$ and $p < 0.001$, supporting H_1 . Learning motivation yields $t = 3.507$ and $p = 0.001$, supporting H_3 . Tax literacy yields $t = 1.890$ and $p = 0.061$, H_2 is not supported at the 0.05 level. Knowledge has the largest standardized coefficient (0.408), followed by motivation (0.268) and literacy (0.166). These values show the relative magnitudes of the three predictors' relationships within the research model.

Table 8. Joint test and model fit

Component	Sum of squares	df	Mean square	F	p
Regression	292.867	3	97.622	32.797	< 0.001
Residual	351.231	118	2.977	-	-
Total	644.098	121	-	-	-

$R = 0.674$, $R^2 = 0.455$, adjusted $R^2 = 0.441$, standard error of the estimate = 1.725. H_4 is supported at $\alpha = 0.05$ level.

Table 8 shows ANOVA results showed regression, residual, and total sums of squares of 292.867, 351.231, and 644.098, respectively. The joint test yields $F(3,118) = 32.797$ with $p < 0.001$, supporting H_4 . R was 0.674, R^2 was 0.455, and adjusted R^2 was 0.441, with a standard error of the estimate of 1.725. The model explained 45.5% of the variation in understanding scores according to R^2 , or 44.1% after adjustment for the number of predictors. This joint result establishes the significance of the predictor set, while the partial decision for literacy remains based on $p = 0.061$. Table 8 presents the joint test results alongside the model fit statistics.

4.6 Tax Knowledge and Tax Understanding

Tax knowledge is positively and significantly associated with tax understanding after accounting for literacy and motivation. $B = 0.433$ indicates that a one-unit increase in the knowledge score is associated with a 0.433-unit increase in understanding, while the other predictors are held constant. Its standardized coefficient, $\beta = 0.408$, is the largest among the three predictors. Knowledge therefore exhibits the strongest relative relationship within the model, consistent with H_1 .

This relationship can be interpreted through the role of knowledge in reading and reasoning about tax material. Knowledge of general provisions and procedures supports administrative understanding, knowledge of collection systems clarifies taxpayer responsibilities, and knowledge of rates and taxable objects supports calculations. These foundations provide students with resources for interpreting cases and explaining why a particular procedure applies. This interpretation accords with [Bornman and Ramutumbu's \(2019\)](#) general, procedural, and legal knowledge framework.

The finding is consistent with [Astari and Sinarwati \(2024\)](#), who examine tax knowledge in relation to students' tax understanding. [Putro and Tjen \(2020\)](#) and [Abbas et al. \(2021\)](#) provide an educational context that links tax instruction and prior knowledge to learning-related outcomes. [Mustapha et al. \(2021\)](#) also demonstrate students' need for content concerning tax rules and policies. Together, these findings support maintaining conceptual instruction as the foundation of application activities, particularly in vocational programs that prepare students for tax work.

For the study program, the implication is to connect conceptual explanations with exercises that require students to justify their answers. Calculation tasks can include explanations of the tax category, taxable object, and applicable provisions. Case discussions can ask students to compare alternative procedures using available information. Such activities combine conceptual mastery with

application. This teaching direction follows from the observed relationship between knowledge and understanding and can inform the program's instructional development.

4.7 Tax Literacy and Tax Understanding

Tax literacy has a positive but statistically insignificant partial coefficient at the 0.05 level. $B = 0.176$, $\beta = 0.166$, and $p = 0.061$ indicate that H_2 is not supported in the model that includes knowledge and motivation. This result distinguishes descriptively high literacy scores from the significance of the relationship between literacy and understanding. The mean literacy of 17.13 does not determine the t-test result because the partial test assesses literacy after accounting for the other two predictors.

Two statistical considerations explain why the variable with the highest mean is not a significant predictor. First, a mean describes how highly students rate their literacy as a group, whereas a regression coefficient describes whether students with higher literacy also report higher understanding when knowledge and motivation are held constant; a uniformly high level does not imply a strong unique relationship. Second, literacy overlaps with the other predictors. Taken alone, literacy is positively correlated with understanding (Spearman $\rho = 0.536$), but it is also correlated with tax knowledge ($\rho = 0.574$) and has the lowest tolerance among the predictors (0.598), which means that about 40% of its variance is shared with knowledge and motivation. Because knowledge is the dominant predictor, much of the variation in understanding that literacy could explain is already absorbed by knowledge, and the remaining unique contribution of literacy ($\beta = 0.166$, $p = 0.061$) is too small to reach significance. The result therefore reflects the overlap between literacy and knowledge more than the absence of any relationship.

A conceptual explanation lies in what literacy captures, the literacy indicators emphasize practical and operational skills, such as following regulatory information, operating digital tax platforms, and fulfilling obligations on time. Understanding requires reasoning about the meaning of tax provisions. Students may be technically capable of accessing tax information and completing procedures without necessarily internalizing or conceptually interpreting that information. [Moučková and Vitek \(2018\)](#) assess literacy through tax-specific questions, [van Laar, van Deursen, van Dijk, and de Haan \(2017\)](#) distinguish information skills from broader conceptual problem solving, and [Bornman and Wassermann \(2020\)](#) show that digital environments require knowledge suited to the transactions involved. From the perspective of the Theory of Planned Behavior, literacy was linked to subjective norms, and the finding suggests that the support of the learning environment alone does not deepen understanding unless it is accompanied by conceptual mastery. Literacy thus functions as an enabling capability more than as a main determinant of understanding.

The vocational setting helps explain this pattern. Learning at Politeknik Negeri Lampung emphasizes practice and work readiness, and the study program's environment includes hands-on tax activities such as annual tax return assistance through e-Filing, e-Form, and e-Billing ([Damayanti, Pentiana, Anggraini, Kurniawan, Mareta, Indriyani, & Syahril, 2025](#)) and training on VAT and tax invoices in coretax ([Mareta, Damayanti, Nurmala, Pentiana, Anggraini, Kurniawan, & Syahril, 2025](#)). Familiarity with tax information and digital systems is therefore widespread among respondents, which is reflected in the highest mean score. This familiarity is largely procedural, however, and it does not by itself differentiate students who can explain and reason about tax provisions from those who cannot. Respondents had also completed their tax courses and were entering field practice and final assignments, a stage at which operational skills continue to be used while conceptual understanding depends on what was mastered in coursework and on students' own motivation to review it. In this context, procedural fluency can be high even when conceptual understanding varies.

A comparison with previous studies shows that the role of literacy depends on the outcome examined. Studies reporting significant relationships mostly concern interest or attitudinal outcomes, [Irfandi, Malikah, and Mawardi \(2023\)](#) and [Yakin and Widayati \(2022\)](#) find that tax literacy is significantly related to students' interest in a tax career, and [Xu, Liu, and Kim \(2023\)](#) relate accounting and tax education to tax literacy among college students. Studies reporting weak or

nonsignificant roles concern outcomes that demand more than information use, [Noreen and Kristanto \(2021\)](#) find that tax complexity cannot weaken the negative effect on compliance, and [Susanti, Susilowibowo, and Hardini \(2020\)](#) find that tax knowledge, but not education level, is associated with compliance. [Moučková and Vitek \(2018\)](#) report that the association between tax courses and filing experience and literacy differs by tax topic. [Alexander, Balavac-Orlic, Lymer, and Mukherjee \(2023\)](#) examined literacy, awareness, and morale among young adults. The present finding is closer to the second group: when the outcome is conceptual understanding and knowledge is included in the same model, literacy alone does not show a significant partial relationship with conceptual understanding.

The teaching implication is to integrate literacy activities with case explanations. Students can be asked to locate information, explain its relevance to a problem, and show how it informs a calculation or administrative task. [Damayanti et al. \(2025\)](#) tax return assistance and [Mareta et al. \(2025\)](#) VAT and invoice training provide examples of information application in taxation. The purposeful use of digital sources remains relevant to the curriculum, while the finding directs attention to connecting information with conceptual understanding.

4.8 Learning Motivation and Tax Understanding

Learning motivation is positively and significantly associated with tax understanding, with $B = 0.258$, $\beta = 0.268$, $t = 3.507$, and $p = 0.001$. H_3 is supported. Students who report stronger learning motivation tend to have higher understanding scores after accounting for knowledge and literacy. This result establishes the relevance of motivation alongside conceptual knowledge in explaining student understanding. A conceptually consistent mechanism is the continuity of learning. The desire to succeed and prepare for a career can encourage students to revisit the material, complete exercises, and seek explanations when difficulties arise. These activities sustain engagement with the tax content. [Howard et al. \(2021\)](#) connected motivation with performance and persistence across student samples, while [Theobald \(2021\)](#) examined self-regulated learning interventions in higher education. [Astari and Sinarwati \(2024\)](#) provide evidence of the relationship between motivation and tax understanding. These studies support the interpretation of the drive to learn as relevant to developing understanding.

The present study assesses motivation as a direct predictor in multiple regression, whereas [Cahya and Listiadi \(2021\)](#) and [Yashinta et al. \(2024\)](#) treat learning motivation as a moderator in accounting and tax accounting learning. [Panadero \(2017\)](#) distinguishes components of self-regulated learning, in which motivation sustains effort. From the TPB perspective, the results are consistent with perceived behavioral control: students who feel able and willing to keep learning maintain their understanding even when formal classes are limited. These broader findings offer context for the association observed here without equating the study's self-reported understanding score with externally assessed academic achievement.

At Politeknik Negeri [Lampung, Handayani et al. \(2025\)](#) and [Safitri et al. \(2024\)](#) examine motivation in studies of career and certification-course interest. This study adds evidence concerning understanding as an outcome. Practical implications include clear learning goals, feedback on exercises, and structured independent learning opportunities. [Howard et al. \(2021\)](#) and [Schneider and Preckel \(2017\)](#) provide a wider educational context for motivation and achievement. In vocational education, these activities can be connected to workplace cases so that students recognize the relevance of the competencies they are developing.

4.9 Joint Relationship and Educational Implications

The significant F-test shows that knowledge, literacy, and motivation are jointly associated with tax understanding. The adjusted R^2 of 0.441 indicates that the model explains 44.1% of the variation after accounting for the number of predictors. This result brings cognition, information use, and learning motivation into a single empirical framework. Knowledge and motivation had significant partial relationships, whereas literacy had a positive coefficient with an insignificant partial result. This pattern was the central finding of the integrated analysis.

The study establishes the value of distinguishing conceptual knowledge, information-use capabilities, and the willingness to learn when the outcome is understanding. Read through the theory of planned behavior, the significant results for knowledge and motivation are consistent with the roles of attitude toward learning and perceived behavioral control, while the nonsignificant result for literacy suggests that the normative and informational support of the learning environment is not sufficient on its own to deepen understanding without conceptual mastery. The findings complement research on awareness, compliance, and tax-related interests by focusing on an educational outcome. This contribution concerns the relationships tested in the model without equating student understanding with taxpayer behavior.

Practically, the study program can connect the three dimensions through a sequence beginning with conceptual explanations, followed by relevant source searches, case application, and feedback. The emphasis on knowledge and motivation follows their significant partial results. Literacy can be integrated through information-use activities supporting problem-solving. This direction is consistent with curricular attention to tax principles, the need for tax education, and young adults' experiences of engaging with taxation ([Alexander, Balavac-Orlic, Lymer, & Mukherjee, 2023](#); [Mustapha, Olaleye, Olanike, & Olowookere, 2021](#); [Cechovsky, 2020](#)).

Instructional development can also connect coursework, practical activities, and final assignments. Concise materials on core concepts can be paired with administrative or computational exercises. Students can receive feedback on their reasoning and final answers. [Damayanti, Pentiana, Anggraini, Kurniawan, Mareta, Indriyani, and Syahrial \(2025\)](#) and [Mareta, Damayanti, Nurmala, Pentiana, Anggraini, Kurniawan, and Syahrial \(2025\)](#) provide examples of assistance and training by connecting information with applications. These recommendations indicate ways to apply the findings; specific activities can be developed and evaluated further according to the study program's needs.

5. CONCLUSIONS

5.1 Conclusion

The study of 122 Tax Accounting students in the 2022 and 2023 cohorts at Politeknik Negeri Lampung shows that tax knowledge and learning motivation are positively and significantly associated with tax understanding in the partial tests. Tax literacy has a positive but statistically insignificant coefficient at the 0.05 level. H_1 and H_3 are supported, whereas H_2 is not supported. The three variables are jointly significant, supporting H_4 . Knowledge has the largest standardized coefficient in the model, and the adjusted R^2 indicates that the model explains 44.1% of the variation in understanding scores. The main contribution of this study is to clarify the distinct roles of conceptual knowledge, information use, and learning motivation in tax understanding as a vocational education outcome. The findings provide a basis for strengthening knowledge and continued learning, with literacy activities connected to case applications. For the study program, the practical message is to design activities that help students explain the rationale for a procedure, use sources appropriately, and sustain their engagement in tax-learning.

5.2 Research Limitations

The 122 respondents were selected purposively from two cohorts in one study program, which limits the generalizability to other institutions or student groups. Knowledge, literacy, motivation, and understanding were each measured using four self-reported Likert items in the same online questionnaire; shared measurement may affect the associations, and the understanding score does not establish performance on independent tax problems. The cross-sectional regression identifies associations and cannot demonstrate that knowledge or motivation causes understanding. Cronbach alpha values of 0.626–0.706 met the study's 0.60 criterion but also warrant caution in interpreting the precision of the four short scales, especially the nonsignificant literacy coefficient.

5.3 Suggestions and Directions for Future Research

For Politeknik Negeri Lampung, the findings lead to five practical recommendations for the Tax Accounting Study Program. First, update tax course materials regularly in line with current tax

regulations and administration systems, including Coretax, so that conceptual instruction remains current. Second, increase the share of case-based exercises in tax courses and require students to state the tax category, taxable object, and provision applied, so that understanding goes beyond memorization. Third, sustain learning motivation through interactive teaching methods, feedback on exercises, and recognition of academic achievement. Fourth, provide structured mentoring for final-semester students who no longer attend formal classes, for example, periodic tax case clinics or review sessions during field practice and final-assignment supervision. Fifth, retain tax literacy activities but embed them in these case tasks by asking students to locate the relevant regulation or digital service and explain how it supports their answer.

For future research, four directions follow from the findings and limitations of this study. First, add variables that may account for the variation in understanding not explained by the model (55.9% based on adjusted R^2), such as the learning environment, academic guidance, field practice experience, and self-efficacy. Second, examine learning technology more specifically, for example tax e-learning or the integration of artificial intelligence in tax accounting instruction, and test whether tax literacy relates to understanding indirectly through tax knowledge, given that its partial coefficient was not significant here. Third, improve measurement by using longer scales with higher reliability and an objective test of tax understanding in place of self-reported scores. Fourth, extend the sample to other vocational institutions and cohorts and use probability sampling or longitudinal designs so that the results can be generalized and changes in understanding during the final semesters can be observed.

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AUTHOR CONTRIBUTIONS

AN contributed to conceptualization, data collection, data curation, formal analysis, and original draft preparation. UK as a contributing author and corresponding author, was responsible for conceptualization, supervision, validation, manuscript drafting, and critical review. I contributed to supervision, methodology validation, and critical review. DP contributed to validation, review of the interpretation of results, and manuscript refinement. All authors participated in reviewing and finalizing the manuscript and approved the final version for publication.

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