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THE EFFECT OF SELF REINFORCEMENT, SELF REGULATION AND STUDY HABITS ON THE LEARNING OUTCOMES OF GRADE XI ACCOUNTING STUDENTS IN THE TAX ADMINISTRATION SUBJECT AT SMK X

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Abstract
This study investigates the effects of self reinforcement, self regulation, and study habits on students' learning outcomes in the Tax Administration subject at SMK X. A quantitative explanatory survey was conducted among accounting and institutional finance students. The reported population comprised 143 students, from whom 105 respondents were selected through proportionate stratified random sampling. Self reinforcement, self regulation, and study habits were measured using five-point Likert questionnaires, while learning outcomes were represented by students' Tax Administration assessment scores. Data were analyzed using multiple linear regression in SPSS 29. The regression equation was $Y = 43.087 + 0.172X1 + 0.159X2 + 0.226X3$. Self reinforcement had a positive and significant effect on learning outcomes ($B = 0.172$; $\beta = 0.390$; $t = 4.360$; $p < 0.001$). Self regulation also had a positive and significant effect ($B = 0.159$; $\beta = 0.219$; $t = 2.510$; $p = 0.014$), as did study habits ($B = 0.226$; $\beta = 0.319$; $t = 3.002$; $p = 0.003$). Jointly, the three predictors significantly explained learning outcomes ($F = 95.389$; $p < 0.001$), with $R^2 = 0.739$ and adjusted $R^2 = 0.731$. The findings show that students' capacity to reward and encourage themselves, regulate learning processes, and maintain productive routines is associated with higher achievement. Self reinforcement produced the largest standardized coefficient, followed by study habits and self regulation. The study supports an integrated learner-agency perspective in vocational accounting education, but interpretation should consider the single-school setting, self-reported predictors, high outcome-score concentration, and an inconsistency in the source manuscript between the Grade XI label and the reported Grade XI–XII sample allocation.

Keywords: self reinforcement; self regulation; study habits; learning outcomes; tax administration; vocational education

BACKGROUND

Learning outcomes are a central indicator of whether instructional objectives have been achieved. They represent changes in knowledge, skills, attitudes, and performance that become observable after students participate in a learning process. In vocational education, achievement has a particularly practical meaning because students are expected not only to remember concepts but also to apply procedures accurately, interpret documents, solve work-related problems, and develop professional habits. Tax Administration is one of the subjects that combines conceptual understanding with technical accuracy. Students must understand rules, identify taxable elements, perform calculations, complete documentation, and respond to cases that may change across learning topics. These requirements make learning outcomes sensitive to both classroom instruction and students' capacity to manage their own behavior.

Academic achievement is produced by the interaction of internal and external factors. Teachers, learning materials, facilities, peer support, and family conditions constitute important external influences. At the same time, students differ in motivation, confidence, persistence, emotional control, time management, and learning routines. These internal processes determine whether an instructional opportunity is converted into sustained effort and mastery. A student may have access to the same teacher and resources as classmates yet obtain a different result because the student responds differently to difficulty, organizes study differently, or fails to maintain a productive routine outside scheduled lessons.

Self reinforcement refers to students' capacity to provide consequences, appreciation, or encouragement to themselves after reaching a target or displaying desirable behavior. It may take verbal forms, such as positive self-talk and recognition of progress, or nonverbal and symbolic forms, such as allowing a short break, engaging in a preferred activity, or giving oneself a modest reward after completing a difficult assignment. Rooted in social cognitive and behavioral perspectives, self reinforcement can help maintain actions that would otherwise decline when immediate external feedback is unavailable. In academic settings, this process may strengthen persistence, confidence, and willingness to repeat effective learning behavior.

Self regulation concerns the active management of cognition, motivation, emotion, behavior, and environmental resources toward a chosen goal. Self-regulated students set targets, plan strategies, monitor comprehension, control distractions, seek assistance, and evaluate results. They do not merely react to teaching; they participate as agents who organize their own learning. This capacity is especially important when students face complex or cumulative material because weaknesses in planning and monitoring can allow misconceptions to persist. Research consistently associates self-

regulated learning with stronger academic performance and more effective time management (Zimmerman, 2002; Lourenço & Paiva, 2024).

Study habits are recurring patterns through which students carry out learning activities. They include planning study time, avoiding delay, concentrating, reviewing material, completing assignments, using learning resources, participating in group work, and preparing for assessments. A habit differs from a temporary intention because it is repeatedly enacted and becomes relatively stable. Productive habits reduce the amount of decision-making required to begin learning and help students distribute effort across time. Poor habits, by contrast, increase dependence on last-minute study, expose students to distraction, and reduce opportunities for feedback and correction.

Although these three constructs are related, they describe different mechanisms. Self reinforcement supplies consequences that help maintain behavior. Self regulation organizes goal-directed learning through planning, monitoring, and control. Study habits represent the repeated behavioral pattern through which learning is implemented. Examining them in one model is important because a positive association between one variable and achievement may partly reflect the contribution of the others. Multiple regression allows the unique association of each predictor to be evaluated while the remaining variables are held constant.

Prior studies generally suggest that reinforcement, self-regulated learning, and study habits can support achievement, but results vary across subjects, educational levels, and measurement choices. Latorre-Cosculluela et al. (2022) show that social reinforcement is related to intrinsic motivation and academic expectations. Sholiha et al. (2022) report that self-regulated learning predicts mathematics learning outcomes, while Lourenço and Paiva (2024) demonstrate links among self-regulation, time-management planning, and performance. Evidence on study habits is more heterogeneous: Rahmawati and Suciati (2023), for example, found that study habits were not significant after other predictors were controlled. Such inconsistency justifies testing the relationships in the vocational accounting context.

This study focuses on students learning Tax Administration at SMK X. Its objectives are to analyze the partial effects of self reinforcement, self regulation, and study habits on learning outcomes and to test their simultaneous contribution. The contribution lies in integrating three learner-controlled mechanisms in a subject that demands accuracy, persistence, and routine practice. The study also reports effect sizes and model diagnostics so that statistical significance can be interpreted together with practical and methodological considerations.

THEORETICAL FRAMEWORK

Social cognitive perspective and self reinforcement

Social cognitive theory views behavior as the product of reciprocal interaction among personal characteristics, behavior, and the environment. Individuals are not passive recipients of external stimuli; they observe their own performance, compare it with standards, and respond to the result. Self reinforcement occurs when students administer a positive consequence after meeting a self-defined criterion. The mechanism can increase the probability that effective behavior will be repeated because progress is connected with an immediate and personally meaningful response. Bandura (1997) also emphasizes self-efficacy: belief in one's capability affects the goals selected, the effort invested, and persistence when difficulties occur.

In Tax Administration learning, self reinforcement can be attached to manageable milestones, such as completing a set of calculations accurately, reviewing an error log, or finishing an assignment before the deadline. The academic benefit does not arise from the reward alone. It arises because the student defines a criterion, monitors completion, and links a positive consequence to the desired behavior. If rewards are disproportionate or unrelated to actual mastery, the mechanism may lose effectiveness. Thus, academically useful self reinforcement requires specific targets and honest self-evaluation.

Self-regulated learning

Zimmerman (2002) conceptualizes self-regulated learning as a cyclical process that includes forethought, performance, and self-reflection. During forethought, students analyze tasks, establish goals, and select strategies. During performance, they apply strategies, monitor attention, and control behavior. During reflection, they evaluate outcomes and adapt future action. This cycle clarifies why self regulation should be related to achievement: students continuously compare actual progress with intended goals and correct their approach before failure becomes permanent.

The source manuscript operationalizes self regulation through self-efficacy, target setting, emotional control, searching for learning resources, and evaluating learning effectiveness. These dimensions are relevant to vocational subjects. Students need confidence to attempt technical tasks, targets to structure practice, emotional control when calculations are difficult, access to examples and regulations, and reflection to identify recurring mistakes. Self regulation should therefore improve both the quantity and quality of academic effort.

Study habits as behavioral implementation

Study habits translate intentions into repeated practice. They include delay avoidance and effective work methods, as well as regularity, concentration, cooperation, responses to teachers, and preparation for evaluation. Habits can reduce

procrastination and distribute learning across multiple sessions, which promotes rehearsal and correction. In procedural subjects, repeated practice is particularly valuable because students must become fluent in a sequence of steps while retaining conceptual understanding. The quality of a study habit depends not only on time spent but also on whether the routine includes active recall, problem solving, feedback, and revision.

The three constructs form a complementary sequence. Self regulation establishes goals and monitors progress; study habits implement learning repeatedly; and self reinforcement helps maintain productive behavior. The sequence is not necessarily linear, because reinforcement can strengthen habits and successful habits can improve self-efficacy. Nevertheless, the framework suggests that each construct may contribute unique variance to achievement. The regression model tests whether this expectation is supported after their overlap is considered.

HYPOTHESIS DEVELOPMENT

Self reinforcement and learning outcomes

Positive self-administered consequences can increase persistence and maintain behaviors such as reviewing notes, completing exercises, and correcting mistakes. Reinforcement may also increase perceived progress and confidence, helping students continue when external feedback is delayed. Empirical evidence on social reinforcement likewise indicates positive links with motivation and academic expectations (Latorre-Cosculluela et al., 2022). H1 therefore proposes that self reinforcement positively affects learning outcomes.

Self regulation and learning outcomes

Students who set goals, monitor understanding, manage emotion, and adapt strategies are better positioned to convert instructional resources into achievement. Self regulation also supports help-seeking and time-management planning. Previous evidence shows positive relationships between self-regulated learning and academic performance across different contexts (Sholiha et al., 2022; Lourenço & Paiva, 2024). H2 proposes that self regulation positively affects learning outcomes.

Study habits and learning outcomes

Regular and effective learning routines provide repeated exposure to material, reduce procrastination, and increase readiness for assessment. Planning, concentration, task completion, and evaluation should be particularly useful in Tax Administration, where accuracy improves through practice. Although prior findings are mixed, the theoretical expectation remains positive. H3 proposes that study habits positively affect learning outcomes.

Simultaneous influence

The combined model represents motivational maintenance, strategic control, and behavioral routine. A student who encourages the self but lacks planning may work inefficiently; a well-regulated student without consistent habits may fail to enact plans; and a routine without reflection may reproduce ineffective methods. Their joint presence should therefore provide a stronger explanation of learning outcomes than any mechanism considered alone. H4 proposes that self reinforcement, self regulation, and study habits jointly affect learning outcomes.

Code	Research hypothesis
H1	Self reinforcement has a positive and significant effect on learning outcomes.
H2	Self regulation has a positive and significant effect on learning outcomes.
H3	Study habits have a positive and significant effect on learning outcomes.
H4	Self reinforcement, self regulation, and study habits simultaneously affect learning outcomes.

METHOD

Research design and participants

The study used a quantitative explanatory survey design. The reported population consisted of 143 Accounting and Institutional Finance students at SMK X. Sample size was calculated with the Slovin formula at a 5% error tolerance, producing 105 respondents. Proportionate stratified random sampling was used to preserve class representation. The source manuscript's allocation table includes two Grade XI and two Grade XII classes, even though the title and several narrative sections refer to Grade XI; the reported allocation is retained here and treated as a limitation requiring verification before publication.

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Table 1. Population and sample allocation

Class	Population	Sample	Share of sample
XI-AKL 1	37	27	25.7%
XI-AKL 2	37	27	25.7%
XII-AKL 1	35	26	24.8%
XII-AKL 2	34	25	23.8%
Total	143	105	100.0%

Variables and measurement

Learning outcomes were measured using students' reported school assessment scores in Tax Administration. The independent variables were measured using a five-point Likert questionnaire distributed online through Google Forms. Positive statements were scored from 1 (strongly disagree) to 5 (strongly agree), with reverse scoring for negative statements. The questionnaire was derived from theoretical indicators and previous studies. A 30-student pilot test used a Pearson product-moment critical value of 0.361. The source manuscript reports that 12 of 15 items were retained for each predictor after validity testing. It explicitly reports Cronbach's alpha of 0.833 for self regulation and study habits; the corresponding self-reinforcement reliability coefficient is not clearly documented in the supplied manuscript.

Table 2. Operationalization of variables

Variable	Role	Main indicators	Measurement
Learning outcomes (Y)	Dependent	Tax Administration assessment result	School score
Self reinforcement (X1)	Independent	Verbal, nonverbal, gestural, proximity/touch, enjoyable activity, symbol/object	Likert score
Self regulation (X2)	Independent	Self-efficacy, targets, emotional control, resource seeking, evaluation	Likert score
Study habits (X3)	Independent	Learning skills, routines, group activity, response to teacher, comprehension and assessment strategies	Likert score

Data analysis

Data were processed in SPSS 29. Descriptive statistics summarized minimum, maximum, mean, standard deviation, and variance. Residual normality was evaluated using the one-sample Kolmogorov–Smirnov test and visual plots. Multiple linear regression estimated the unique contribution of each predictor according to $Y = a + b1X1 + b2X2 + b3X3 + e$. Partial hypotheses were evaluated through t tests at $\alpha = 0.05$. Model significance was evaluated through an F test, while R^2 and adjusted R^2 assessed explanatory power. Standardized coefficients were compared to describe the relative association of predictors measured on different scales. Because the design is observational and cross-sectional, coefficients are interpreted as conditional associations rather than definitive causal effects.

RESULT

Respondent distribution

The final dataset contained 105 students. Two Grade XI classes each contributed 27 students, while the two Grade XII classes contributed 26 and 25 students. The shares ranged from 23.8% to 25.7%, indicating that no single class dominated the sample. The close proportional distribution is consistent with the sampling strategy and reduces the risk that the regression represents only one classroom context. However, classroom-level clustering was not modeled, so possible similarities among students within the same class remain part of the unexplained structure.

Descriptive statistics

Table 3. Descriptive statistics

Variable	N	Minimum	Maximum	Mean	Std. deviation	Variance
Self reinforcement	105	67	145	111.22	13.423	180.173

Variable	N	Minimum	Maximum	Mean	Std. deviation	Variance
Self regulation	105	60	87	74.64	8.138	66.233
Study habits	105	54	98	73.67	8.357	69.840
Learning outcomes	105	79	100	90.74	5.921	35.058

Self reinforcement ranged from 67 to 145, with a mean of 111.22 and a standard deviation of 13.423. Self regulation ranged from 60 to 87, with a mean of 74.64 and a standard deviation of 8.138. Study habits ranged from 54 to 98, with a mean of 73.67 and a standard deviation of 8.357. Because the scales have different numbers or ranges of items, their raw means should not be compared as if they were expressed on the same metric. Their value lies in describing within-variable central tendency and dispersion.

Learning outcomes ranged from 79 to 100 and averaged 90.74. The standard deviation of 5.921 indicates that achievement scores were concentrated toward the high end of the scale. This restricted range is relevant because regression coefficients depend on variation in the dependent variable. A ceiling tendency can reduce the model's ability to distinguish students who have already reached high achievement and can make small score differences statistically influential. The result therefore describes variation within a relatively high-achieving group rather than the entire possible performance spectrum.

Residual normality

Table 4. One-sample Kolmogorov–Smirnov test of residuals

Statistic	Value
N	105
Residual mean	0.000
Residual standard deviation	0.604
Maximum absolute difference	0.054
Test statistic	0.054
Asymptotic significance (two-tailed)	0.200

The Kolmogorov–Smirnov significance value was 0.200, exceeding 0.05. Thus, the null hypothesis of normal residual distribution was not rejected. The source manuscript also reports that the P–P plot followed the diagonal and that the residual histogram was approximately bell-shaped. These results support the normality assumption. The source text contains a typographical comparison stating "0.200 < 0.05"; the correct comparison is 0.200 > 0.05, which is used in this article.

Multiple regression estimates

Table 5. Multiple linear regression coefficients

Predictor	B	Std. error	Standardized β	t	p-value
Constant	43.087	2.897	—	14.872	<0.001
Self reinforcement	0.172	0.039	0.390	4.360	<0.001
Self regulation	0.159	0.063	0.219	2.510	0.014
Study habits	0.226	0.075	0.319	3.002	0.003

The estimated equation is Y = 43.087 + 0.172X1 + 0.159X2 + 0.226X3. Holding self regulation and study habits constant, a one-point increase in self reinforcement was associated with a 0.172-point increase in the learning-outcome score. Holding the other predictors constant, a one-point increase in self regulation was associated with a 0.159-point increase in achievement, while a one-point increase in study habits was associated with a 0.226-point increase. The intercept is a

model anchor and should not be interpreted as an expected real-world score because a zero value lies outside the observed ranges of all three predictors.

The standardized coefficients permit relative comparison. Self reinforcement had the largest standardized association (β = 0.390), followed by study habits (β = 0.319) and self regulation (β = 0.219). This ordering does not mean that one construct is universally more important. It means that, within this sample and conditional on the other predictors, a one-standard-deviation difference in self reinforcement corresponded to the largest predicted difference in achievement. Measurement quality, restricted score ranges, and construct overlap can affect the ordering.

Partial hypothesis tests

Self reinforcement produced t = 4.360 with p < 0.001. Because the coefficient was positive and statistically significant, H1 was supported. Self regulation produced t = 2.510 with p = 0.014, supporting H2. Study habits produced t = 3.002 with p = 0.003, supporting H3. At the conventional 5% level, all three predictors retained a positive unique association with learning outcomes after the remaining predictors were controlled.

Table 6. Summary of partial hypothesis tests

Hypothesis	Relationship	B	t	p-value	Decision
H1	Self reinforcement → learning outcomes	0.172	4.360	<0.001	Supported
H2	Self regulation → learning outcomes	0.159	2.510	0.014	Supported
H3	Study habits → learning outcomes	0.226	3.002	0.003	Supported

Simultaneous model test

Table 7. Analysis of variance

Source	Sum of squares	df	Mean square	F	p-value
Regression	2694.910	3	898.303	95.389	<0.001
Residual	951.177	101	9.417	—	—
Total	3646.087	104	—	—	—

The regression model produced F(3, 101) = 95.389 with p < 0.001. The joint null hypothesis that all three slope coefficients equal zero was therefore rejected. H4 was supported: the predictors collectively provided a statistically meaningful explanation of learning outcomes. This F test establishes overall model usefulness but does not demonstrate that every omitted factor is unimportant or that the relationships are causal.

Model explanatory power

Table 8. Model summary

R	R^2	Adjusted R^2	Std. error of estimate	Durbin–Watson
0.860	0.739	0.731	3.069	0.733

The model R^2 was 0.739, indicating that 73.9% of the observed variance in learning outcomes was statistically associated with the three predictors. Adjusted R^2 was 0.731, showing only a modest reduction after accounting for the number of predictors and sample size. The residual standard error was 3.069 score points. The remaining 26.1% may reflect other determinants such as prior knowledge, instructional quality, interest, attendance, parental support, learning facilities, peer environment, cognitive ability, and measurement error.

The reported explanatory power is high for an educational cross-sectional model and should be interpreted carefully. Predictor data were collected from the same respondents at one time, while learning outcomes were concentrated between 79 and 100. Common response tendencies, overlapping constructs, restricted outcome variance, and the absence of reported multicollinearity diagnostics may influence R^2 and individual coefficients. Replication with variance-inflation factors, tolerance statistics, residual plots, and classroom-clustered standard errors would strengthen confidence in the model.

DISCUSSION

Self reinforcement positively affects learning outcomes

The positive effect of self reinforcement indicates that students who more consistently provide themselves with encouragement or appropriate rewards tend to obtain higher Tax Administration scores. The coefficient remains significant after self regulation and study habits are controlled, suggesting that reinforcement contributes more than general planning or routine alone. Its standardized coefficient of 0.390 is the largest in the model, making it the strongest conditional correlate among the three predictors.

A plausible mechanism is behavioral maintenance. Tax Administration tasks often require several stages, careful reading, and repeated checking. These activities can be effortful and may not provide immediate external recognition. Self reinforcement creates a near-term consequence after a student completes a target, such as reviewing a topic or correcting a calculation. By shortening the delay between effort and a positive response, students may be more likely to repeat the behavior. Over time, repeated completion can increase exposure to material and reduce avoidant responses to difficult tasks.

Verbal reinforcement may operate through constructive self-talk. Students who acknowledge progress and frame errors as correctable are less likely to interpret one difficult task as evidence of inability. Nonverbal or symbolic reinforcement can add a tangible endpoint to a learning session. The educational value depends on whether the criterion is linked to genuine effort or mastery. Rewarding mere presence without checking understanding may sustain time-on-task but not improve competence. Teachers can therefore guide students to define specific criteria, such as completing a practice set with a target accuracy or explaining an error before receiving the self-selected reward.

The finding is compatible with social cognitive theory, in which individuals observe and evaluate their behavior and administer self-directed consequences. It also aligns with evidence that reinforcement and positive socio-emotional experiences support motivation and academic expectations (Latorre-Cosculluela et al., 2022). Nevertheless, the construct in the source instrument includes multiple forms—verbal, gestural, proximity, enjoyable activities, and symbols—that partly resemble teacher-provided reinforcement. The article follows the manuscript's label, but future instrument development should distinguish reinforcement initiated by the student from reinforcement received from teachers or others.

For practice, teachers can embed a self-reinforcement protocol in assignments. Students may set a small target, identify a meaningful but proportionate reward, record completion evidence, and reflect on whether the strategy improved persistence. The process should remain autonomy-supportive; external control over every reward could undermine the self-directed element. Digital learning platforms can also provide progress indicators and badges, but students should be encouraged to connect these signals with authentic competence rather than collecting rewards without mastery.

Self regulation positively affects learning outcomes

Self regulation had a positive coefficient and remained significant at $p = 0.014$. The result indicates that goal setting, emotional control, resource seeking, self-efficacy, and evaluation are associated with stronger achievement after reinforcement and habits are held constant. Its standardized coefficient was smaller than the others, but statistical and educational relevance should not be judged solely by rank. Self regulation may also enable reinforcement and habits to function effectively, creating indirect contributions not captured by a purely additive regression model.

The result supports the cyclical model of self-regulated learning. During forethought, students can identify the learning target and allocate time. During performance, they monitor calculations, protect attention from distraction, and seek examples or assistance. During reflection, they compare results with the target and adjust the next study session. Tax Administration contains rules and procedural steps that make monitoring particularly useful: an error can be traced to concept selection, arithmetic, document interpretation, or sequence. Students who reflect at this level can select a more precise corrective strategy.

Self-efficacy is another pathway. Students who believe that improvement is possible are more willing to attempt challenging problems and persist after mistakes. Yet confidence without monitoring can become inaccurate. Effective regulation combines belief with evidence: students set goals, test understanding, and revise strategies based on performance. Emotional control also matters because anxiety or frustration can narrow attention and lead to premature task abandonment. Short pauses, task decomposition, and help-seeking can prevent emotion from becoming avoidance.

The finding is consistent with Sholiha et al. (2022), who found self-regulated learning related to mathematics achievement, and with Lourenço and Paiva (2024), who connect self-regulation with time-management planning and performance. It also fits more recent evidence emphasizing self-regulation and volitional control as central to academic achievement. The common implication is that self regulation is teachable. Schools should not assume students automatically know how to plan, monitor, and evaluate learning merely because assignments are provided.

A practical intervention can use a weekly learning cycle. Before instruction, students state a specific target and anticipated difficulty. During practice, they record errors and resources consulted. After practice, they identify which strategy worked and what should change. Teachers can review the logs periodically without turning them into a punitive compliance exercise. The purpose is to make regulation visible, provide feedback on strategy quality, and gradually transfer responsibility to students.

Study habits positively affect learning outcomes

Study habits had a positive and significant association with achievement ($B = 0.226$; $\beta = 0.319$; $p = 0.003$). This result indicates that students who maintain more productive routines—planning, regularity, concentration, engagement with teachers or peers, and preparation for evaluation—tend to achieve higher Tax Administration scores. Unlike occasional motivation, habits provide repeated opportunities for learning and reduce dependence on last-minute effort.

Distributed practice is a likely mechanism. Tax concepts and calculations become more accessible when students revisit material across several sessions rather than concentrate all effort immediately before an assessment. Regular review also increases the chance that misunderstandings will be detected while there is still time to seek clarification. Concentration determines the quality of each session, while evaluation allows students to decide whether the routine is producing mastery. Thus, productive habits combine consistency with feedback rather than merely increasing study duration.

Group activity and response to teachers can also support achievement when they are academically focused. Explaining a calculation to a peer requires students to organize reasoning, while asking a teacher about a specific error can provide targeted correction. However, group study is not inherently effective; it can become social distraction if goals and roles are unclear. The practical implication is to structure collaborative practice around cases, answer justification, and peer checking rather than unstructured discussion.

The finding differs from Rahmawati and Suciati (2023), who reported that study habits were not significant after achievement motivation and locus of control were included. Differences in subject, educational level, sample composition, and operationalization can explain the contrast. Study habits may be more consequential in a procedural vocational subject than in contexts where prior ability or other psychological variables dominate. The present result should therefore be interpreted as context-specific evidence, not proof that every habitual activity improves every learning outcome.

Schools can support habit formation through predictable practice schedules, short cumulative exercises, error-review routines, and reminders that gradually fade as students become more independent. Teachers should evaluate the quality of methods, not only assignment completion. Students who repeatedly copy solutions may appear disciplined but develop weak retrieval and transfer. Effective routines should require active calculation, explanation, and self-correction.

The predictors jointly explain learning outcomes

The overall F test confirms that the three predictors form a statistically useful model. Conceptually, their combined influence is coherent: self regulation directs behavior toward goals, study habits provide repeated implementation, and self reinforcement supplies consequences that sustain the process. The high R^2 suggests that learner-controlled processes are closely associated with achievement in the sample. The model therefore supports an integrated learner-agency perspective rather than treating motivation, strategy, and routine as isolated elements.

The standardized coefficients show that self reinforcement and study habits had larger direct associations than self regulation. One interpretation is that immediate behavioral maintenance and repeated routines are more directly reflected in assessment scores, while regulation operates partly through those behaviors. For example, a student's planning skill will affect achievement only if the plan leads to practice, and self-evaluation will matter only if it produces a change in strategy. A mediation model could test whether study habits transmit part of the effect of self regulation and whether self reinforcement strengthens the conversion of plans into consistent behavior.

The result also has a cautionary side. $R^2 = 0.739$ is unusually substantial given only three psychological predictors. The constructs may overlap: giving oneself reinforcement can be considered part of self-regulation, while planning and evaluation appear in both self regulation and study-habit measures. If predictors share similar item content, their combined explanatory power can be high while individual constructs are not fully distinct. The source manuscript does not report factor analysis, inter-construct correlations, tolerance, or VIF. Future studies should establish discriminant validity and assess multicollinearity before strong claims are made about unique effects.

Common-method conditions may further raise associations because all predictor questionnaires were completed by the same respondents in the same format. Learning outcomes were based on school scores, which helps separate the outcome method, but self-report predictors can still be affected by social desirability and students' general tendency to describe themselves positively. Collecting teacher ratings, learning logs, digital traces, and repeated measures would provide stronger triangulation. Experimental or longitudinal designs are also required before concluding that increasing one predictor will cause a specific score gain.

Implications for vocational accounting education

The findings suggest that technical instruction should be accompanied by explicit support for learner agency. Teachers can model how to break a tax case into subtasks, set a completion criterion, monitor errors, and select a self-reward after verified progress. This sequence integrates the three predictors rather than launching separate programs. A short worksheet can contain a target, planned method, distraction-control strategy, error record, reflection, and reinforcement choice. Over time, scaffolding can be reduced so that students internalize the cycle.

Assessment design can also strengthen the mechanisms. Frequent low-stakes quizzes provide feedback for self evaluation; cumulative practice encourages regular review; correction tasks reward learning from errors; and transparent rubrics help students set standards. Feedback should identify the process that led to success, not merely praise ability. Process-specific feedback makes it easier for students to repeat effective behavior and reduces the risk that reinforcement becomes empty approval.

At the school level, counseling and academic-support programs can teach time management, emotional regulation, and study strategies. Programs should be evaluated through observable changes such as assignment timeliness, practice frequency, error reduction, and assessment improvement. Students with already high scores may need more challenging tasks to avoid ceiling effects, while students with lower scores may need diagnostic support for prerequisite knowledge. A uniform intervention may not address these different needs.

For students, the results imply that achievement can be supported through small, repeatable actions. A practical cycle is to set one measurable target, work in a distraction-controlled interval, check accuracy, note the error type, and provide a modest reward only after the criterion is met. This approach links motivation to evidence of learning. It also prevents self reinforcement from becoming avoidance and prevents routines from becoming mechanical repetition.

A staged instructional model

The combined findings can be translated into a staged instructional model for Tax Administration. The first stage is diagnostic: teachers identify prerequisite knowledge, common calculation errors, and students' current approaches to planning and practice. The second stage is guided regulation: the teacher demonstrates how to define a realistic target, choose a strategy, anticipate obstacles, and specify evidence of completion. The third stage is deliberate practice: students complete a short set of increasingly complex cases while recording where errors occur. The fourth stage is reflection and reinforcement: students compare performance with the criterion, state the adjustment needed, and provide an appropriate self-selected consequence after genuine completion. The final stage is transfer, in which the same cycle is applied to a new tax topic with less teacher prompting.

This model clarifies the distinct function of each predictor. Self regulation is visible in target selection, strategy choice, monitoring, and reflection. Study habits emerge when the cycle is scheduled and repeated across lessons rather than used once. Self reinforcement supports persistence by connecting verified progress with a positive consequence. Keeping these functions distinct is important for evaluation. A student may complete the routine regularly but use an ineffective strategy; another may plan well but stop when the work becomes difficult. The teacher can diagnose the weak link and provide targeted support instead of treating low achievement as a single problem.

Methodological interpretation and robustness

The regression results are internally coherent, but several assumptions require attention. The source manuscript documents residual normality but does not clearly report linearity tests for each predictor, homoscedasticity, influential observations, multicollinearity, or independence across classroom clusters. The Durbin–Watson statistic is 0.733; in cross-sectional classroom data it should not be interpreted mechanically as a time-series autocorrelation test, yet the low value reinforces the need to examine ordering and clustered dependence. Robust standard errors or multilevel modeling may be appropriate if observations share classroom-level influences.

Outcome scores show limited dispersion and a high mean, which may indicate a ceiling tendency. Ordinary least squares assumes an unbounded continuous outcome, whereas school scores are bounded between 0 and 100. In this sample the predictions may still be usable, but future analysis could examine residuals near the upper boundary or apply alternative models when ceiling effects are severe. Reporting confidence intervals for coefficients would also show precision more clearly than p-values alone.

The source manuscript's population description requires correction before submission. The title and several passages refer to Grade XI, while the population and realized sample tables include Grade XI and XII. Because the class allocation accounts for all 105 cases, this article reports the data as provided but flags the inconsistency. The final title and method should follow verified school records and the LOA. If the intended study truly covers both grades, the title should be broadened; if only Grade XI was intended, the Grade XII observations and sample size must be reconsidered.

CONCLUSION

This study finds that self reinforcement, self regulation, and study habits are positively and significantly associated with Tax Administration learning outcomes among 105 accounting students at SMK X. Self reinforcement has the largest standardized coefficient ($\beta = 0.390$), followed by study habits ($\beta = 0.319$) and self regulation ($\beta = 0.219$). Jointly, the three predictors form a significant model, $F(3, 101) = 95.389$, $p < 0.001$, explaining 73.9% of observed achievement variance. All four hypotheses are supported.

The findings indicate that students benefit when they can sustain effort through appropriate self-reinforcement, direct learning through planning and monitoring, and implement productive routines consistently. Teachers and schools can integrate these mechanisms through goal-setting sheets, structured practice, error reflection, process-focused feedback, and gradual transfer of learning responsibility. The results should be interpreted as cross-sectional associations rather than causal effects.

LIMITATIONS AND FUTURE RESEARCH

The study is limited to one anonymized vocational school and uses self-report measures for all predictors. The dependent scores are concentrated near the upper end of the scale, and the manuscript does not provide complete diagnostics for multicollinearity, heteroscedasticity, influential cases, or classroom clustering. Reliability reporting is also incomplete for the self-reinforcement instrument. Most importantly, the title refers to Grade XI while the sampling table includes both Grade XI and XII. These issues should be resolved before publication and reduce the generalizability of the present findings.

Future studies should use multiple schools, confirm grade eligibility, report complete measurement validation, and apply confirmatory factor analysis to distinguish the three related constructs. Longitudinal data can test whether changes in regulation and habits precede achievement changes. Multilevel models can separate student and classroom effects, while experiments can evaluate targeted interventions. Potential mediation should also be examined: self regulation may improve study habits, and self reinforcement may sustain the implementation of regulated learning plans.

BIBLIOGRAPHY

Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.

Ghozali, I. (2018). Aplikasi analisis multivariate dengan program IBM SPSS 25 (9th ed.). Badan Penerbit Universitas Diponegoro.

Latorre-Cosculluela, C., Sierra-Sánchez, V., Rivera-Torres, P., & Liesa-Orús, M. (2022). Emotional well-being and social reinforcement as predictors of motivation and academic expectations. International Journal of Educational Research, 115, 102043. https://doi.org/10.1016/j.ijer.2022.102043

Lourenço, A. A., & Paiva, M. O. (2024). Academic performance of excellence: The impact of self-regulated learning and academic time management planning. Knowledge, 4(2), 289–301. https://doi.org/10.3390/knowledge4020016

Rahmawati, D., & Suciati, S. (2023). Pengaruh achievement motivation, locus of control, dan study habits terhadap hasil belajar matematika siswa sekolah dasar. Jurnal Studi Guru dan Pembelajaran, 6(3), 273–292. https://doi.org/10.30605/jsgp.6.3.2023.3080

Sekaran, U., & Bougie, R. (2017). Research methods for business: A skill-building approach (7th ed.). Wiley.

Sholiha, T. A., Kurniati, N., Tyaningsih, R. Y., & Prayitno, S. (2022). Pengaruh self-regulated learning (SRL) terhadap hasil belajar matematika siswa kelas XI SMAN 1 Masbagik. Jurnal Ilmiah Profesi Pendidikan, 7(3), 1355–1362.

Sugiyono. (2019). Metode penelitian kuantitatif, kualitatif, dan R&D. Alfabeta.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. Theory Into Practice, 41(2), 64–70. https://doi.org/10.1207/S15430421TIP4102_2