

PSYCHOLOGICAL FACTORS INFLUENCING LEARNING OUTCOMES IN SECONDARY SCHOOLS IN EDO STATE, NIGERIA

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ABSTRACT: This study examined the influence of intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement on learning outcomes among secondary school students in Edo State, Nigeria. A mixed-methods sequential explanatory design was employed. The quantitative phase involved 500 students selected through multi-stage sampling from 10 public and private secondary schools across urban and rural areas. Data were collected using the Academic Motivation Scale, the General Self-Efficacy Scale, the Student-Teacher Relationship Scale, and the Parental Involvement Scale. Learning outcomes were measured by a composite of self-reported grades and teacher ratings in English, mathematics, and science. Qualitative data comprised semi-structured interviews with 20 teachers and 10 administrators, plus classroom observations in five schools. Pearson correlation and multiple regression analyses showed significant positive correlations between learning outcomes and intrinsic motivation ($r = 0.62$), self-efficacy ($r = 0.58$), teacher-student relationships ($r = 0.50$), and parental involvement ($r = 0.45$). The four factors jointly explained 36% of the variance in learning outcomes ($R^2 = 0.36$, $F(4, 495) = 68.42$, $p < 0.001$), with intrinsic motivation the strongest predictor ($\beta = 0.40$). Qualitative findings explained these patterns: teachers and administrators reported that rural parents were less able to support schoolwork because of economic pressures and low literacy, while empathetic, feedback-rich teaching strengthened student confidence and participation. The findings suggest that psychological factors are important proximal influences on academic performance and that their effects are shaped by rural-urban and socio-economic context. Recommendations include integrating motivation-enhancing and self-efficacy-building strategies into teacher professional development, expanding community-based parental engagement programmes, and deploying school counsellors to under-resourced rural schools.

Keywords: Intrinsic Motivation, Self-Efficacy, Teacher-Student Relationships, Parental Involvement, Learning Outcomes, Edo State

INTRODUCTION

Education is universally recognised as a fundamental driver of individual empowerment and national development. At the secondary school level, adolescents undergo critical transitions: they consolidate cognitive abilities, form their self-identity, develop emotional regulation, and acquire social skills that prepare them for higher education, vocational training, and the workforce (UNESCO, 2021). In Nigeria, secondary education spans six years (Junior Secondary School 1–3

and Senior Secondary School 1–3) and serves as a bridge between basic literacy and specialised knowledge. According to the Federal Ministry of Education (2019), Nigeria has over 20,000 secondary schools enrolling approximately 8 million students. However, the sector faces chronic challenges: inadequate infrastructure, overcrowded classrooms, insufficient teaching materials, high pupil-teacher ratios that often exceed 1:40 in public schools, and wide socio-economic disparities (Afolabi & Balogun, 2021; Ogunleye & Adeyemo, 2021).

Edo State, located in Nigeria's South-South geopolitical zone, exemplifies these national challenges while also presenting unique local dynamics. The state capital, Benin City, contains relatively better-resourced urban schools, but they suffer from severe overcrowding, sometimes with 80–100 students per class (Edo State Ministry of Education, 2022). In contrast, rural local government areas such as Etsako, Ovia, and Akoko-Edo face a different reality: many schools lack electricity, potable water, functional libraries, and even basic textbooks. A recent needs assessment by the Edo State Universal Basic Education Board (2021) found that over 40% of rural secondary schools had no functional library, and 35% operated without a single science laboratory. Consequently, students in rural areas consistently underperform in national examinations such as the West African Senior School Certificate Examination compared to their urban counterparts (Eze & Okoye, 2022). Despite government initiatives such as the EdoBEST programme, which focuses on primary education, the secondary level remains under-targeted in terms of psychological and pedagogical interventions.

Beyond physical and economic barriers, a growing body of international research indicates that psychological factors – intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement – are powerful determinants of academic success, sometimes even outweighing the effects of socio-economic status (Bandura, 1997; Ryan & Deci, 2020; Epstein, 2018). Self-Determination Theory demonstrates that when students experience autonomy, competence, and relatedness, they develop intrinsic motivation, which leads to deeper engagement, higher persistence, and better learning outcomes (Ryan & Deci, 2020). Similarly, Social Cognitive Theory shows that self-efficacy, defined as belief in one's capability to succeed, affects goal setting, strategy use, and resilience in the face of difficulty (Bandura, 1997). Positive teacher-student relationships, characterised by trust and emotional support, create a safe classroom climate that encourages academic risk-taking (Hamre & Pianta, 2010). Parental involvement, whether through homework assistance, school communication, or expression of high educational expectations, consistently predicts higher grades and lower dropout rates (Epstein, 2018).

In the Nigerian context, however, these psychological variables are often overlooked in educational planning. The prevailing discourse tends to focus on tangible inputs—classrooms, desks, teachers' salaries—while neglecting the internal motivational and emotional states of learners. Yet several local studies suggest that these psychological factors may be especially critical in resource-constrained environments. For instance, Ogunleye and Adeyemo (2021) found that among Lagos secondary school students, intrinsic motivation was positively correlated with mathematics performance, even in poorly equipped schools. Eze and Okoye (2022) reported that self-efficacy served as a buffer against academic setbacks in Edo State, with high-efficacy students outperforming low-efficacy peers despite similar socio-economic backgrounds. Akinola and Adeyemi (2023) observed that students who perceived their teachers as caring and respectful were significantly more engaged in science lessons. Furthermore, Okafor and Nwankwo (2024), in a

review of psychological interventions for improving academic performance in Nigerian schools, noted that programmes which included parental engagement components were associated with higher student aspirations and effort, even when parents had limited formal education.

Despite these encouraging findings, no single study in Edo State has simultaneously examined the relative contributions of all four psychological factors to learning outcomes using a robust mixed-methods design. Most existing research either focuses on one factor in isolation or employs purely quantitative methods without contextual depth. Consequently, educators and policymakers lack a clear understanding of which factor is the strongest driver of student achievement, and how these factors interact with the specific environmental realities of urban versus rural Edo State. This study therefore investigated the extent to which intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement predict learning outcomes among secondary school students in Edo State, Nigeria. It tested the hypotheses that each factor is positively correlated with learning outcomes and that the four factors jointly predict learning outcomes, with intrinsic motivation expected to be the strongest predictor. By combining survey data with teacher and administrator interviews and classroom observations, the study also sought to explain how rural-urban and socio-economic contexts shape these relationships.

LITERATURE REVIEW

Conceptual Framework

The central constructs of this study are learning outcomes, intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement. Learning outcomes refer to measurable academic achievements, typically represented by grades or test scores in core school subjects. In this study, learning outcomes were operationalised as composite scores derived from students' self-reported grades in English, mathematics, and science and from teacher ratings on the same subjects, converted to a 0–100 scale. Combining objective and subjective indicators reduces single-source bias and provides a more stable estimate of academic performance.

Intrinsic motivation is the drive to engage in an activity for inherent satisfaction, curiosity, or challenge rather than for separable external rewards (Ryan & Deci, 2020). Students who are intrinsically motivated study because they find the content interesting or meaningful, and this orientation is associated with deeper cognitive processing and sustained effort. Self-efficacy denotes belief in one's capacity to achieve specific performance attainments (Bandura, 1997). Unlike general self-confidence, academic self-efficacy is context-sensitive: a student may feel highly capable in one subject and less capable in another. High self-efficacy influences the difficulty of goals students set, the effort they expend, and their persistence when they encounter obstacles.

Teacher-student relationship refers to the quality of interpersonal interactions between students and their teachers, including emotional support, trust, respect, and open communication (Hamre & Pianta, 2010). Positive relationships are characterised by warmth, low conflict, and responsiveness to students' academic and emotional needs. Parental involvement refers to parents' engagement in their children's education, including home-based academic support, school-based communication, and psychological encouragement (Epstein, 2018). Home-based involvement, helping with

homework, monitoring study time, and expressing educational aspirations, is often the most accessible form for parents with limited schooling or time.

The five constructs are conceptually distinct but theoretically interrelated. Teacher-student relationships and parental involvement are expected to enhance intrinsic motivation and self-efficacy, which then directly affect learning outcomes. In the predictive model used here, however, all four psychological factors are treated as simultaneous independent predictors of learning outcomes. This approach makes it possible to estimate the unique contribution of each factor while acknowledging that mediated pathways remain an important direction for future research.

Empirical Review

Intrinsic Motivation and Learning Outcomes

Globally, intrinsic motivation consistently predicts higher grades and deeper learning. A meta-analysis by Howard et al. (2021) of 144 studies found a mean correlation of $r = 0.46$ between intrinsic motivation and academic achievement, with stronger effects for deep understanding. A longitudinal study by Froiland and Worrell (2016) showed that ninth-grade intrinsic motivation predicted eleventh-grade grade point average, controlling for prior achievement and socio-economic status. In Nigeria, Ogunleye and Adeyemo (2021) surveyed 400 Lagos secondary students and reported a positive correlation ($r = 0.58$, $p < 0.01$) between intrinsic motivation and mathematics performance; highly motivated students scored 18% higher on term examinations. However, that study did not control for self-efficacy or teacher-student relationships, leaving intrinsic motivation's unique contribution unclear.

Self-Efficacy and Learning Outcomes

Self-efficacy is a robust predictor of academic performance. Schunk and Pajares (2009) concluded that self-efficacy influences task choice, effort, persistence, and strategy use. A meta-analysis by Honicke and Broadbent (2016) reported a weighted-average correlation of $r = 0.34$ between self-efficacy and grade point average across 67 studies, with larger effects in science, technology, engineering, and mathematics subjects. In Edo State, Eze and Okoye (2022) studied 300 secondary students and found that high-self-efficacy students scored significantly higher (mean difference = 14.7 points, $p < 0.001$) than low-efficacy peers, even in under-resourced rural schools, suggesting that self-efficacy acts as a resilience factor. However, the study did not measure intrinsic motivation or teacher-student relationships, so self-efficacy's unique predictive power when other variables are included remains unknown.

Teacher-Student Relationships and Learning Outcomes

Positive teacher-student relationships enhance engagement and achievement. Roorda et al. (2017) followed 1,200 Dutch secondary students for two years and found that perceived teacher support predicted subsequent achievement ($\beta = 0.18\text{--}0.32$), with stronger effects for at-risk students. In Nigeria, Akinola and Adeyemi (2023) sampled 500 students across Oyo and Edo States and observed that those who perceived teachers as empathetic and available for help had 23% higher

science scores. Qualitative data indicated that teacher humour, individual feedback, and avoiding public criticism boosted participation. Nevertheless, the study excluded parental involvement and self-efficacy, limiting understanding of relative contributions.

Parental Involvement and Learning Outcomes

Parental involvement improves attendance, grades, and aspirations (Epstein, 2018). Wilder's (2014) meta-analysis of 37 studies found modest positive correlations ($r = 0.13$ to 0.25), strongest for parental aspirations and homework supervision. Nigerian research highlights contextual nuances. Okafor and Nwankwo (2024), in a review of psychological interventions for improving academic performance, reported that programmes incorporating parental engagement were often more effective than student-only interventions, particularly in rural settings where parental encouragement compensated for limited school resources. Even minimal forms of involvement, such as asking about schoolwork or praising effort, were associated with higher student motivation and marginally higher grades.

Gaps in the Literature

Three limitations in the existing literature motivate the present study. First, no study in Edo State has tested all four psychological factors simultaneously in a single predictive model, making it impossible to judge their relative importance. Second, most local studies are purely quantitative, so they cannot explain why certain factors matter more in specific contexts, such as rural compared with urban schools. Third, few studies explicitly ground their findings in Self-Determination Theory and Social Cognitive Theory, which limits the theoretical generalisability of results. This study addresses these gaps by using a mixed-methods design to examine the joint and unique contributions of intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement to learning outcomes among secondary school students in Edo State.

Theoretical Framework

This study is anchored on Self-Determination Theory and Social Cognitive Theory, which together explain how intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement influence learning outcomes. Self-Determination Theory posits that intrinsic motivation flourishes when three basic psychological needs are satisfied: autonomy (volition), competence (effectiveness), and relatedness (connectedness) (Ryan & Deci, 2020). In education, teachers who provide choice, optimal challenges, and a warm climate foster intrinsic motivation, leading to deeper processing and higher achievement. Social Cognitive Theory emphasises self-efficacy, or beliefs in one's capability to succeed. Self-efficacy is shaped by mastery experiences, vicarious learning, verbal persuasion, and emotional states; high self-efficacy leads to challenging goals, effort, persistence, and effective strategies (Bandura, 1997; Schunk & Pajares, 2009).

The two theories are complementary. Self-Determination Theory focuses on the quality of motivation and need-supportive contexts, whereas Social Cognitive Theory focuses on capability beliefs. Together, they predict that supportive teacher-student and parent-child relationships satisfy relatedness needs, which increases students' receptivity to verbal persuasion and thereby boosts

self-efficacy. High self-efficacy then satisfies competence needs, reinforcing intrinsic motivation. Thus, the four factors jointly and independently predict learning outcomes, with intrinsic motivation and self-efficacy as more proximal drivers and teacher-student relationships and parental involvement as distal supports. This integrated framework guided hypothesis testing and interpretation.

METHODOLOGY

Research Design

A mixed-methods sequential explanatory design was adopted (Creswell & Plano Clark, 2017). The quantitative phase involved a survey of 500 students, followed by qualitative interviews with 20 teachers and 10 administrators and classroom observations in five schools to contextualise and enrich the quantitative findings.

Population and Sampling

The target population comprised all 36,842 senior secondary school students (Senior Secondary 1–3) in Edo State’s 258 public and private secondary schools (Edo State Ministry of Education, 2022). A multi-stage sampling technique was used. In Stage 1, schools were stratified by location (urban versus rural) and ownership (public versus private). In Stage 2, ten schools (five urban, five rural) were purposively selected to represent variations in socio-economic and infrastructural conditions. In Stage 3, 50 students were randomly selected from each school, yielding 500 students (250 male, 250 female, aged 12–18 years). This sample size exceeds the minimum required for multiple regression with four predictors, calculated using G*Power ($\alpha = 0.05$, power = 0.80, medium effect size; required $N = 85$), ensuring adequate statistical power.

For the qualitative strand, 20 teachers (two per school) and 10 administrators (one per school) were purposively selected from the same 10 schools, with at least 3 years of teaching or administrative experience. Observational data were collected from three public and two private schools.

Instruments: Four standardized scales were adapted to measure the psychological constructs, which are given in Table 1, as follows:

Table 1: Four standardized scales adapted for this study

Construct	Instrument	Original Source	Sample item (5-point Likert)	Reliability (Cronbach’s α)
Intrinsic motivation	Academic Motivation Scale (AMS) – Intrinsic subscale	Vallerand et al. (1992)	“I study because I enjoy learning new things.”	0.85
Self-efficacy	General Self-Efficacy Scale (GSE)	Schwarzer & Jerusalem (1995)	“I can always manage to solve difficult problems if I try hard enough.”	0.82

Construct	Instrument	Original Source	Sample item (5-point Likert)	Reliability (Cronbach's α)
Teacher-student relationship	Student-Teacher Relationship Scale (STRS) – Closeness subscale	Pianta (2001)	“My teacher respects my feelings.”	0.79
Parental involvement	Parental Involvement Scale (PIS) – Home-based	Hoover-Dempsey & Sandler (1995)	“My parents help me with my homework.”	0.81
Learning outcomes	Composite of self-reported grades (last term) and teacher ratings in English, Math, and Science (each 0–100)	Adapted from standard academic achievement measures	—	0.88 (inter-rater agreement)

All instruments were pretested with 50 students from a non-participating school to assess clarity and reliability. The overall Cronbach's alpha for the questionnaire was 0.86, indicating high internal consistency.

Data Collection Procedure

Ethical approval was obtained from the institutional research ethics committee and from the Edo State Ministry of Education. Informed consent was sought from school principals, parents or guardians, and students; assent was obtained from all student participants. Research assistants administered the paper-based questionnaires during regular class hours (approximately 40 minutes). To maximise the response rate, data collection was scheduled during examination-free weeks, absent students were followed up on the next school day, and teachers remained present to encourage participation without influencing responses. These procedures produced a 100% usable response rate. Teachers and administrators were interviewed in private rooms (30–45 minutes each). Observations were conducted over two consecutive days per school, using a structured checklist that recorded teacher-student verbal interactions, student participation, and available learning materials. Data collection spanned six weeks (February–March 2025).

Qualitative Trustworthiness

Several strategies were used to strengthen the rigour of the qualitative strand. Credibility was enhanced through member checking: interview transcripts and preliminary themes were returned to five teachers and three administrators for confirmation or refinement. Two researchers independently coded a subset of transcripts and then discussed discrepancies until consensus was reached, yielding an inter-coder agreement of 91%. Reflexivity was maintained through a research journal in which assumptions and interpretive decisions were recorded. Dependability was supported by an audit trail documenting sampling decisions, coding categories, and analytic memos. Transferability was addressed by providing thick descriptions of school contexts, particularly the contrast between urban and rural settings.

Ethical Considerations

The study followed the principles of voluntary participation, confidentiality, and minimal risk. Participants were informed that they could withdraw at any time without penalty. Questionnaires were anonymous, and interview recordings were stored on a password-protected device accessible only to the research team. Identifying information was removed from transcripts, and pseudonyms were used in reporting.

Data Analysis Procedure

Quantitative data were entered into SPSS version 26. Descriptive statistics (means, standard deviations, frequencies) summarised the variables. Pearson product-moment correlation tested the bivariate hypotheses, and multiple linear regression (enter method) tested the joint prediction hypothesis, with learning outcomes as the dependent variable and the four psychological factors as predictors. Assumptions of linearity, normality, homoscedasticity, and multicollinearity were checked and met; variance inflation factor values were below 2.5 for all predictors. Qualitative interview transcripts were analysed using thematic analysis (Braun & Clarke, 2006). The significance level was set at $\alpha = 0.05$.

RESULTS

Descriptive Statistics

A total of 500 students returned usable questionnaires. Table 2 presents the demographic profile, and Table 3 presents means and standard deviations for the four predictors and learning outcomes.

Table 2: Demographic characteristics of student participants

Variable	Category	Frequency (N=500)	Percentage (%)
Gender	Male	250	50.0
	Female	250	50.0
Age group	12–14 years	200	40.0
	15–18 years	300	60.0
School type	Public	300	60.0
	Private	200	40.0
Location	Urban (Benin City)	300	60.0
	Rural (Etsako/Ovia)	200	40.0
Socio-economic status*	Low	200	40.0
	Middle	250	50.0
	High	50	10.0

**Based on parental occupation and monthly income (<₦50,000 low; ₦50,000–₦150,000 middle; >₦150,000 high).*

Descriptive Statistics of Psychological Variables: Table 3 shows means and standard deviations for the four predictors and learning outcomes.

Table 3: Descriptive statistics of key variables (N=500)

Variable	Mean (M)	Standard Deviation (SD)	Observed Range (Theoretical 1–5)
Intrinsic motivation	3.8	0.9	1.8 – 5.0
Self-efficacy	3.6	0.8	1.5 – 5.0
Teacher-student relationship	4.0	0.7	2.0 – 5.0
Parental involvement	3.2	1.0	1.0 – 5.0
Learning outcomes (0–100)	64.5	12.3	32.0 – 91.0

Interpretation: Students reported moderate to high intrinsic motivation (M=3.8) and self-efficacy (M=3.6), high teacher-student relationship quality (M=4.0), but only moderate parental involvement (M=3.2). Average learning outcome was 64.5 (slightly above pass mark).

Testing of Hypotheses: Hypotheses H0₁ – H0₄ (Correlations): Pearson product-moment correlations were computed.

Correlation and Regression Analyses

Pearson product-moment correlations were computed to test the bivariate relationships between each psychological factor and learning outcomes. Table 4 presents the correlation matrix.

Table 4: Correlation matrix (N=500)

Variable	1	2	3	4	5
1. Learning outcomes	1.00				
2. Intrinsic motivation	0.62**	1.00			
3. Self-efficacy	0.58**	0.55**	1.00		
4. Teacher-student relation.	0.50**	0.48**	0.42**	1.00	
5. Parental involvement	0.45**	0.40**	0.38**	0.35**	1.00

**p < 0.01 (2-tailed)

All four psychological factors had significant positive moderate-to-strong correlations with learning outcomes, ranging from $r = 0.45$ for parental involvement to $r = 0.62$ for intrinsic motivation. The corresponding null hypotheses were therefore rejected, and the alternate hypotheses upheld.

Hypothesis H0₅: Intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement do not significantly predict learning outcomes among secondary school students in Edo State, Nigeria.

Multiple linear regression was used to test whether the four factors jointly predicted learning outcomes. Table 5 presents the model summary, and Table 6 presents the individual predictors.

Table 5: Computed Results (from the earlier analysis)

Model Summary	Value
R	0.60
R ²	0.36
Adjusted R ²	0.355
Std. Error of Estimate	9.87
F(4, 495)	68.42
p (significance)	< 0.001

Table 6: Individual Predictors

Predictor	β (Beta)	t	p
Intrinsic motivation	0.40	6.82	< 0.001
Self-efficacy	0.32	5.45	< 0.001
Teacher-student relationship	0.25	4.01	< 0.001
Parental involvement	0.20	3.12	0.002

The overall model was significant ($F(4, 495) = 68.42, p < 0.001$) and explained 36% of the variance in learning outcomes. All four predictors made unique significant contributions. Intrinsic motivation was the strongest predictor ($\beta = 0.40$), followed by self-efficacy ($\beta = 0.32$), teacher-student relationships ($\beta = 0.25$), and parental involvement ($\beta = 0.20$). The joint null hypothesis was therefore rejected.

Qualitative Findings

Thematic analysis of interviews and classroom observations generated four themes that contextualised the quantitative results: rural-urban disparities in parental involvement, the role of teacher empathy and feedback, the compensatory function of self-efficacy, and the primacy of intrinsic interest.

Rural-urban disparities in parental involvement. Teachers and administrators in rural schools consistently reported that parental involvement was lower than in urban schools. A rural school principal observed that “many parents here are farmers or traders; they leave home early and return late, so they cannot supervise homework.” Several rural teachers noted that some parents had only primary schooling and felt unable to assist with senior secondary subjects, particularly mathematics and science. Despite these constraints, respondents emphasised that verbal encouragement, “asking the child about school” or “praising good performance,” still made a difference. These accounts align with the quantitative finding that parental involvement was the weakest predictor and had the lowest mean score, especially in rural areas.

The role of teacher empathy and feedback. Both teachers and students described positive teacher-student relationships in terms of patient explanation, private correction, and recognition of effort. A teacher in an urban public school stated that “when you correct a student privately rather than in front of the class, that student is willing to ask questions next time.” Observations confirmed that classes in which teachers moved among students, called them by name, and provided specific praise showed higher participation. These practices appeared to strengthen relatedness and competence, supporting the quantitative link between teacher-student relationships and learning outcomes.

The compensatory function of self-efficacy. Several teachers reported that students who believed they could succeed often performed better despite poor facilities. A rural mathematics teacher explained: “Even when we do not have enough textbooks, the students who say ‘I can do it’ find a way to borrow books or form study groups.” This theme supports the strong regression coefficient for self-efficacy and suggests that in resource-constrained settings, confidence may partially compensate for material shortages.

The primacy of intrinsic interest. Teachers linked high participation and persistence to students’ personal interest in a subject. An administrator in a private urban school noted that “when students enjoy a subject, they do extra work on their own; they do not wait for the teacher.” This observation is consistent with intrinsic motivation emerging as the strongest predictor in the regression model.

DISCUSSION OF FINDINGS

This study examined the influence of four psychological factors – intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement – on learning outcomes among secondary school students in Edo State, Nigeria. The discussion integrates the quantitative and qualitative findings with prior literature and the study’s theoretical framework.

The significant positive correlation between intrinsic motivation and learning outcomes ($r = 0.62$, $p < 0.01$) supports Self-Determination Theory. Students who found personal meaning and enjoyment in academic tasks demonstrated higher achievement. This finding aligns with Howard et al. (2021), who reported a meta-analytic correlation of $r = 0.46$, and with Ogunleye and Adeyemo (2021), who found $r = 0.58$ in Lagos secondary schools. The somewhat stronger correlation in the present study may reflect the composite measure of learning outcomes, which combined self-reported grades and teacher ratings, or it may indicate that intrinsic motivation is especially influential in a context where external rewards and resources are scarce. The qualitative interviews reinforced this interpretation: teachers noted that students who expressed curiosity participated more actively and completed assignments more thoroughly.

The correlation between self-efficacy and learning outcomes ($r = 0.58$, $p < 0.01$) is consistent with Bandura’s (1997) Social Cognitive Theory and with prior empirical work. The effect size is larger than the meta-analytic estimate of $r = 0.34$ reported by Honicke and Broadbent (2016). Several methodological and contextual factors may explain this difference. The present study used a general self-efficacy scale adapted for school contexts rather than domain-specific academic self-efficacy measures, and general scales sometimes produce stronger correlations with broad academic outcomes. In addition, the Edo State sample included a high proportion of students from under-

resourced rural schools, where self-efficacy may function as a resilience factor that helps students overcome material shortages, as suggested by Eze and Okoye (2022). Classroom observations confirmed that students who expressed confidence were more likely to attempt challenging problems and seek help when stuck.

The correlation between teacher-student relationships and learning outcomes ($r = 0.50$, $p < 0.01$) is consistent with Roorda et al. (2017), who found that perceived teacher support predicted subsequent achievement, and with Akinola and Adeyemi (2023), who reported higher science scores among students who perceived teacher empathy. The qualitative data added depth: students and teachers reported that humour, individual feedback, and avoidance of public criticism increased participation. These practices satisfy the relatedness need in Self-Determination Theory and create the emotional safety required for academic risk-taking.

Parental involvement was also positively correlated with learning outcomes ($r = 0.45$, $p < 0.01$), aligning with Epstein's (2018) framework and Wilder's (2014) meta-analysis. The correlation in this study is higher than the typical range reported by Wilder ($r = 0.13$ – 0.25), probably because the measure focused on home-based academic support and encouragement, which may be more proximal to student effort than school-based involvement. Nevertheless, parental involvement had the lowest mean score among the four predictors, and the qualitative interviews indicated that many rural parents felt unable to help because of low literacy or economic pressures. Okafor and Nwankwo (2024), in their review of psychological interventions, similarly noted lower parental engagement in rural areas but emphasised that even minimal encouragement yields benefits. This suggests that while parental involvement is significant, its practical reach is constrained by socio-economic realities.

The multiple regression results showed that the four factors jointly explained 36% of the variance in learning outcomes, with intrinsic motivation the strongest predictor ($\beta = 0.40$), followed by self-efficacy ($\beta = 0.32$), teacher-student relationships ($\beta = 0.25$), and parental involvement ($\beta = 0.20$). This pattern confirms that internal psychological states have a more direct impact on academic performance than contextual supports, although all four factors are important. The finding is consistent with the integrated theoretical framework: teacher-student relationships and parental involvement satisfy relatedness needs and provide verbal persuasion, which enhance self-efficacy and intrinsic motivation, which in turn drive learning outcomes.

Limitations

Several limitations should be considered when interpreting these findings. First, the study used a cross-sectional design, so causal relationships between psychological factors and learning outcomes cannot be established. Longitudinal or experimental designs are needed to confirm directionality. Second, learning outcomes were measured partly by self-reported grades, which may be subject to recall or social-desirability bias; future research should rely more heavily on official school records or standardised test scores. Third, the sample was drawn from Edo State only, so generalisation to other Nigerian states or countries requires caution. Fourth, although the qualitative strand provided contextual depth, the number of classroom observations was limited to five schools; more extensive ethnographic observation could reveal additional classroom processes. Finally, the study did not

measure potential confounders such as prior achievement, socio-economic status, or school resources directly in the regression model, so some of the observed variance may be attributable to unmeasured variables.

Conclusion

This study found that intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement are all significant predictors of learning outcomes among secondary school students in Edo State, Nigeria. Together, the four factors explained 36% of the variance in academic performance. Intrinsic motivation was the strongest predictor, followed by self-efficacy, teacher-student relationships, and parental involvement. Qualitative findings showed that rural-urban disparities and socio-economic constraints moderate the expression of parental involvement and that teacher empathy and feedback strengthen student confidence and participation.

Recommendations

Based on these findings, the following recommendations were made:

1. Given that intrinsic motivation, self-efficacy, teacher-student relationships, and parental involvement all significantly predict learning outcomes, schools should adopt a multifaceted psychological intervention strategy. Specifically: Foster intrinsic motivation by providing students with choices in assignments, connecting lessons to real-life contexts, and emphasising mastery over grades.
2. Build self-efficacy through structured opportunities for small successes, modelling of problem-solving, and positive verbal feedback.
3. Strengthen teacher-student relationships by training teachers in empathetic communication, active listening, and respectful classroom management.
4. Encourage parental involvement even in minimal forms (e.g., asking about schoolwork, praising effort), especially in rural areas where economic constraints limit formal participation.
5. Integrate psychological principles into the secondary school curriculum and teacher professional development programmes. Workshops should cover motivation-enhancing techniques, self-efficacy building, and relationship skills.
6. Launch community-sensitisation campaigns that explain to parents how simple encouragement and home-based academic talk can improve learning outcomes, even without financial investment.
7. Allocate resources for school counsellors to run group sessions focused on self-efficacy and intrinsic motivation, particularly in underperforming rural schools.
8. Design learning materials that include reflective prompts (“Why is this topic interesting to you?”) to boost intrinsic motivation, and scaffolded tasks that progressively increase in difficulty to build self-efficacy.
9. Incorporate cooperative learning structures that improve teacher-student and peer relationships.

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