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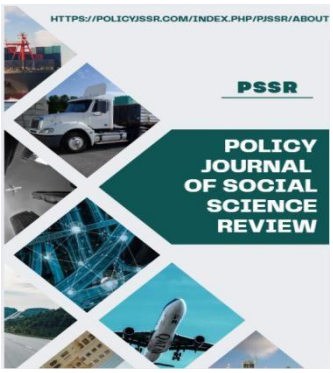

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IMPACT OF INTRINSIC AND EXTRINSIC MOTIVATION ON ACADEMIC PERFORMANCE AMONG SECONDARY SCHOOL STUDENTS: A QUANTITATIVE STUDY

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ABSTRACT

This study examined the impact of intrinsic and extrinsic motivation on academic performance among secondary school students. Guided by Self-Determination Theory, the research adopted a quantitative correlational design to investigate the relationship and predictive influence of motivation on students' academic outcomes. The sample consisted of 150 secondary school students selected using a probability sampling technique. Data on intrinsic and extrinsic motivation were collected through a structured Likert-scale questionnaire, while academic performance was measured using students' percentage marks obtained from official school records. Descriptive statistics, Pearson correlation, and multiple regression analysis were conducted using SPSS statistical software. The results revealed significant positive relationships between intrinsic motivation and academic performance ($r = .483$, $p < .001$) and between extrinsic motivation and academic performance ($r = .421$, $p < .001$). Multiple regression analysis indicated that intrinsic and extrinsic motivation significantly predicted academic performance, explaining 38.7% of the variance in students' academic results ($R2 = .387$, $p < .001$). Intrinsic motivation demonstrated a stronger predictive effect compared to extrinsic motivation. The findings suggest that both forms of motivation play an important role in influencing academic achievement among secondary school students. The study highlights the importance of fostering motivational strategies within schools to enhance student performance.

Keywords: Intrinsic motivation, extrinsic motivation, academic performance, secondary school students

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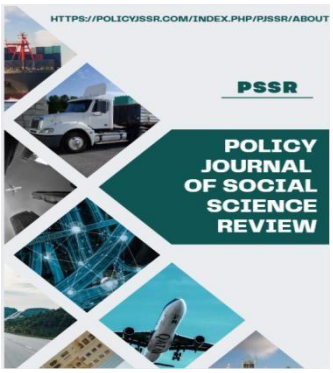

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Introduction

Academic performance is a central indicator of educational success among secondary school students, as it reflects learners' mastery of subject content and overall academic progress. (Park, S. W. 2017). However, students' academic achievement is influenced not only by intellectual ability but also by psychological factors, particularly motivation. Motivation plays a vital role in directing students' behavior, sustaining effort, and encouraging persistence in academic tasks (Romaniuc, R., & Bazart, C.2026). Students who are highly motivated tend to demonstrate greater engagement in learning activities, stronger commitment to goals, and improved academic outcomes. Self-Determination Theory (Deci & Ryan, 2000) distinguishes between intrinsic motivation, which arises from internal interest and enjoyment, and extrinsic motivation, which is driven by external rewards and pressures. Although previous studies have established a theoretical connection between motivation and academic success, there remains a need for quantitative investigation into how these types of motivation influence academic performance among secondary school students.(Ridwan, M.et al, 2025) Therefore, this study examines the impact of intrinsic and extrinsic motivation on academic performance in the secondary school context.

Background of the Study

The concept of motivation has evolved significantly within the field of educational psychology. Early behavioral theories emphasized external reinforcement as the primary driver of learning (Skinner, 1953). However, later theoretical developments introduced cognitive and humanistic perspectives that highlighted internal processes, personal growth, and self-determination as essential components of motivation (Maslow, 1943; Deci & Ryan, 1985). Self-Determination Theory (Deci & Ryan, 2000) provides a comprehensive framework explaining how intrinsic and extrinsic motivation influence academic behavior. According to this theory, intrinsic motivation fosters deeper learning, creativity, and long-term academic persistence, while extrinsic motivation can enhance performance when aligned with meaningful goals and structured support. Empirical studies have demonstrated that intrinsically motivated students often achieve higher academic outcomes (Ghio, R., & De Gioannis, E. 2026) and appropriately, guided extrinsic motivation can positively influence performance (Bandara, K. & Hettiwaththage, R. C., 2025). At the secondary school level, students face academic pressure, examinations, and increasing performance expectations, making motivation a critical factor in determining their academic success. (Wesenberg, L.et al, 2025) Despite

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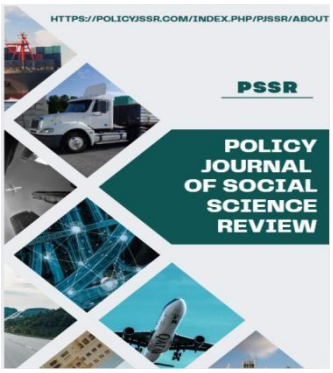

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extensive theoretical support, further quantitative research is necessary to measure the strength and predictive relationship between motivation and academic performance among secondary school students. (Dimitropoulou, P. et al, 2025)

Significance of the Study

This study holds both theoretical and practical significance. Theoretically, it contributes to the body of knowledge in educational psychology by providing empirical evidence on the relationship between intrinsic and extrinsic motivation and academic performance among secondary school students. Practically, the findings may assist teachers in developing instructional strategies that foster students' internal interest and positive external reinforcement. School administrators and policymakers may also benefit from understanding how motivational factors influence academic outcomes, enabling them to design programs that enhance student engagement and achievement. Furthermore, the study may help students recognize the importance of self-motivation and goal orientation in improving their academic performance.

Research Questions:

1. What relationship exists between student motivation and academic performance among secondary school students?
2. To what extent does intrinsic motivation predict academic performance among secondary school students?
3. To what extent does extrinsic motivation predict academic performance among secondary school students

Research Objectives:

- To examine the relationship between intrinsic motivation and academic performance among secondary school students.
- To examine the relationship between extrinsic motivation and academic performance among secondary school students.
- To determine the predictive contribution of intrinsic and extrinsic motivation academic performance among secondary school students.

Literature Review:

Motivation remains a major predictor of academic achievement in secondary education. Self-Determination Theory (SDT) explains motivation in terms of intrinsic and extrinsic components, emphasizing that intrinsically motivated students tend to demonstrate deeper engagement and persistence in learning activities (Ryan & Deci, 2020). Recent international research indicates that intrinsic motivation positively predicts academic achievement, while extrinsic motivation may also contribute to performance when aligned with structured goals and supportive learning

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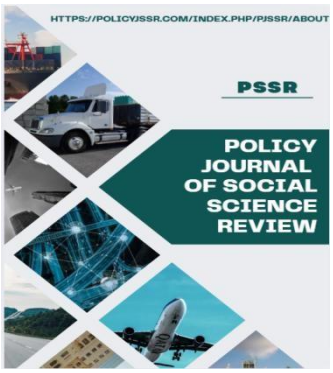

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environments (Stavropoulou, G., et al., 2025).

Furthermore, longitudinal studies highlight reciprocal relationships between motivation and academic achievement, (Affuso, G., 2025) suggesting that motivated students are more likely to improve academically over time (Santana−Monagas, E., et al., 2025). Research conducted among secondary school populations in Europe and Asia reports that motivational profiles characterized by higher autonomy and competence are significantly associated with better academic outcomes These global findings reinforce the importance of examining intrinsic and extrinsic motivation as measurable predictors of academic performance.(Romaniuc, R., & Bazart, C., 2026)

Similarly, research conducted in Baluchistan reported that motivational factors significantly influence academic achievement among secondary school students (Ali, A., et al, 2026). South Asian contexts indicates that intrinsic motivation consistently predicts higher academic performance, while extrinsic motivation contributes to performance when reinforced by structured Within Pakistan, quantitative studies conducted at the secondary school level report significant associations between academic motivation and student performance.(Muhammad et al., 2023, p. 852) A study conducted among secondary school students in Lahore found a positive correlation between academic motivation and engagement. The research suggested that motivated students demonstrate improved academic outcomes(Siddique et al., 2025) Furthermore, evidence indicates that motivational strategies, such as the consistent application of positive feedback and robust teacher support, serve as primary predictors of this variance in student achievement (Din et al., 2026) academic systems. Despite these findings, many regional studies do not distinctly analyze intrinsic and extrinsic motivation as separate predictors using regression-based quantitative models (Malik, M. H., et al, 2024)

Although global research consistently confirms that motivation predicts academic achievement and regional studies demonstrate similar patterns (Ali.A, 2026), gaps remain. Limited research at the secondary school level in Pakistan applies multiple regression analysis to examine intrinsic and extrinsic motivation as distinct predictors of academic performance. Standardized SDT-based measurement tools are not consistently used in regional research. Therefore, this study addresses these gaps by quantitatively examining both intrinsic and extrinsic motivation as predictors of academic performance among secondary school students.

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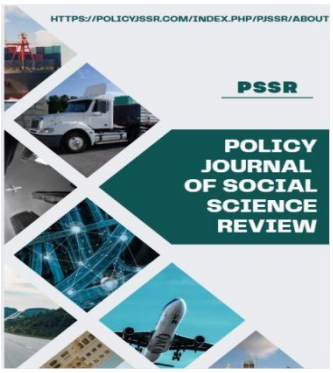

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Methodology:

This study is grounded in the positivist research paradigm, which assumes that knowledge can be obtained through objective measurement and statistical analysis. The study adopts a quantitative research approach using a correlational research design to examine the relationship between intrinsic motivation, extrinsic motivation, and academic performance among secondary school students. A correlational design is appropriate because it allows for the examination of relationships and predictive influences among variables without manipulation.

The population of the study consists of secondary school students enrolled in public secondary schools within the selected region, particularly students in grades IX and X. These students are selected because academic performance at this level is formally assessed through structured examination systems, making it suitable for quantitative measurement.

A sample of students selected using a probability sampling technique to ensure representation of the population. Stratified random sampling applied where necessary to include students from different grade levels and gender groups. The sample size determined based on statistical requirements for multiple regression analysis, with a minimum of 100–150 respondents considered adequate to ensure reliable and valid statistical results.

The study includes two independent variables, intrinsic motivation and extrinsic motivation, and one dependent variable, academic performance. Intrinsic motivation refers to internal interest, enjoyment, curiosity, and personal satisfaction derived from learning activities, while extrinsic motivation refers to external influences such as grades, rewards, recognition, and academic pressure. Academic performance is measured using students' official examination scores or percentage marks obtained from school records.

Data on intrinsic and extrinsic motivation collected using a structured questionnaire adapted from established motivational scales aligned with Self-Determination Theory. The instrument consist of closed-ended items rated on a five-point Likert scale ranging from Strongly Disagree to Strongly Agree. Academic performance data obtained from official school examination records to ensure accuracy.

Content validity of the questionnaire established through expert review in the field of education. Reliability assessed using Cronbach's alpha coefficient to determine internal consistency of the motivation scales, with a value of 0.70 or higher considered acceptable.

Prior to data collection, permission obtained from school authorities. Participation voluntary and confidentiality of respondents ensured. Questionnaires

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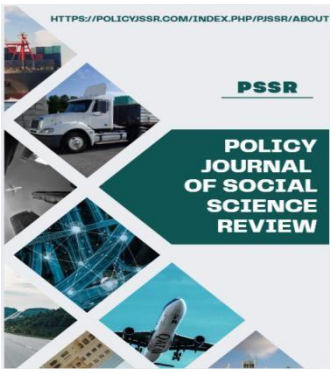

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distributed during school hours with clear instructions provided to participants. Academic performance data recorded from official documents with appropriate authorization.

Data analyzed using statistical software such as SPSS. Descriptive statistics including mean and standard deviation used to describe motivation levels. Pearson correlation analysis conducted to examine the relationship between student motivation and academic performance. Multiple regression analysis used to determine the predictive influence of intrinsic and extrinsic motivation on academic performance.

Hypothesis:

H1: Intrinsic motivation significantly influences academic performance.

Hypothesis 1 (H1) proposes that intrinsic motivation has a significant influence on academic performance among secondary school students. This means that students who are internally motivated through interest, enjoyment, curiosity, and personal satisfaction in learning are more likely to achieve higher academic results. Increased levels of intrinsic motivation are expected to positively predict improvements in examination scores, or percentage marks.

H2: Extrinsic motivation significantly influences academic performance.

Hypothesis 2 (H2) proposes that extrinsic motivation has a significant influence on academic performance among secondary school students. This suggests that external factors such as grades, rewards, praise, recognition, and academic expectations can contribute to students' academic success. It was also expected that higher levels of extrinsic motivation would positively predict better academic performance in terms of examination scores or percentage marks.

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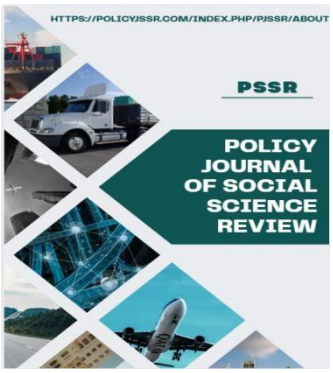

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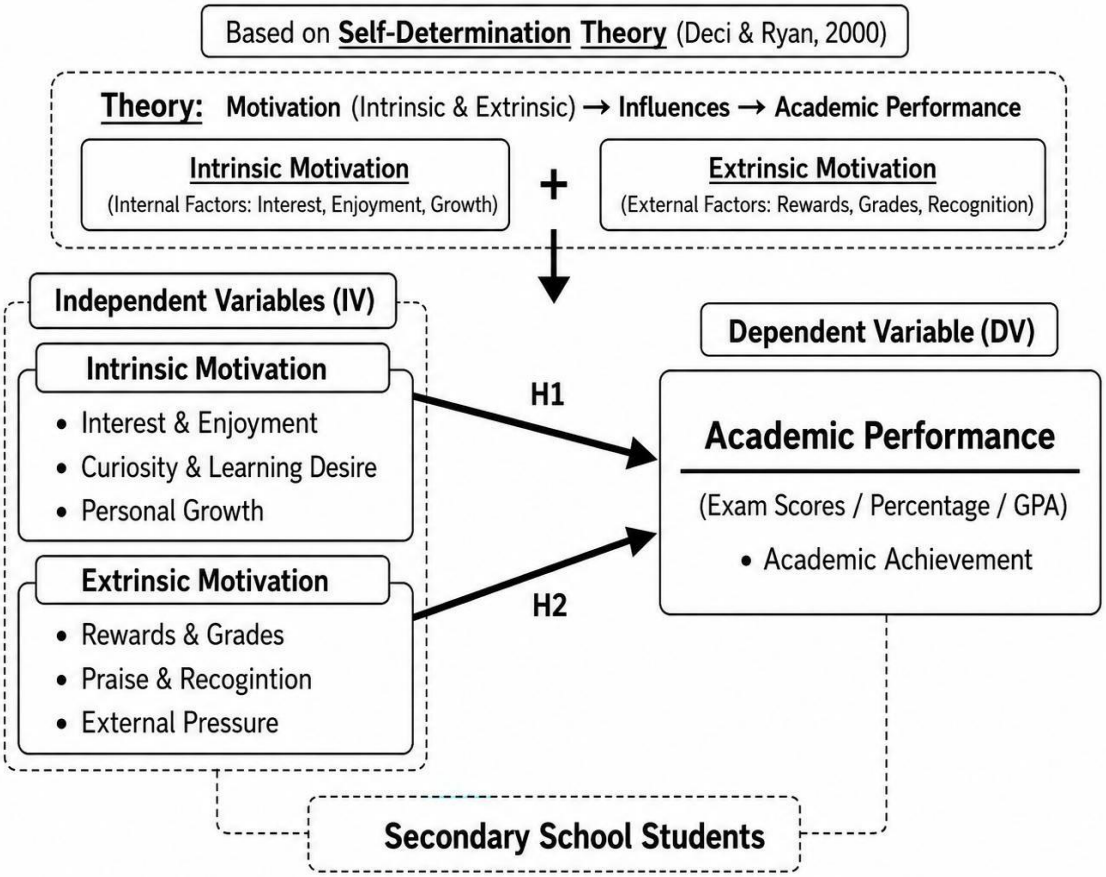
Conceptual Framework:



This study is grounded in Self-Determination Theory (Deci & Ryan, 2000), which explains that two main types of motivation influence students' academic behavior: intrinsic and extrinsic motivation. Intrinsic motivation refers to internal factors such as interest, enjoyment, curiosity, and personal growth, which encourage students to engage in learning for personal satisfaction. Extrinsic motivation, on the other hand, involves external factors such as rewards, grades, recognition, and external pressure that drive students to perform academically. Based on this theory, the conceptual framework proposes that both intrinsic and extrinsic motivation (independent variables) significantly influence academic performance (dependent variable), measured through exam scores, percentage, among secondary school students.

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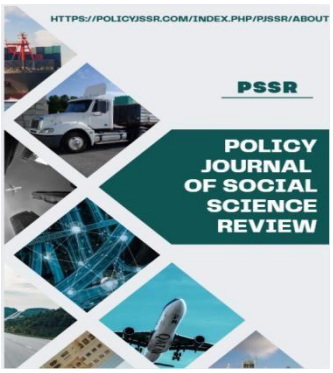

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The conceptual framework proposes that overall student motivation and its components intrinsic motivation and extrinsic motivation play significant roles in shaping academic performance at the secondary school level. The study hypothesizes that a significant relationship exists between student motivation and academic performance (H_1), indicating that internal factors such as interest and engagement in learning contribute to examination scores and percentage marks. In addition, the study hypothesizes that extrinsic motivation significantly influences academic performance (H_2), indicating that external factors such as grades, rewards, and academic expectations contribute to academic outcomes. The framework assumes that variations in overall motivation, intrinsic motivation, and extrinsic motivation result in measurable differences in academic performance.

Chapter 4: Results and Findings

This chapter presents the statistical results of the quantitative data analysis conducted to examine the relationship and predictive influence of intrinsic and extrinsic motivation on academic performance among secondary school students. The collected data were analyzed using descriptive statistics, Pearson product moment correlation, and multiple regression analysis through statistical software. The findings are presented systematically in accordance with the research questions and hypotheses of the study. This chapter focuses on the numerical results, while interpretation and discussion are provided in the subsequent chapter.

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Table 1:

Descriptive Statistics for Study Variables (N = 150)

Variable	Min	Max	Mean	SD
Intrinsic Motivation	2.00	5.00	3.33	0.72
Extrinsic Motivation	1.00	5.00	3.17	0.87
Academic Performance (%)	53.2	100	79.70	9.58

Note. *M = Mean; SD = Standard Deviation.*

The descriptive statistics show that students in the sample demonstrated moderate levels of both intrinsic and extrinsic motivation. The mean score of intrinsic motivation (M = 3.33) suggests that students generally showed internal interest and engagement in learning activities. Similarly, the mean score of

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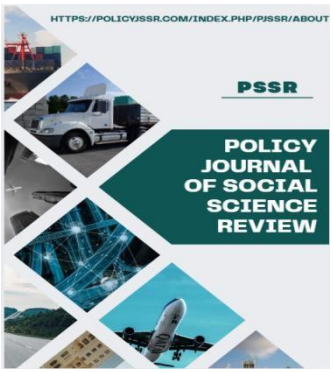

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extrinsic motivation (M = 3.17) indicates that external factors such as grades and recognition also influenced students' academic behavior.

The average academic performance (M = 79.70%) indicates that students achieved relatively satisfactory results overall. The standard deviations show that there was some variation among students in both motivation levels and academic performance, meaning that not all students had the same level of motivation or achievement.

Table 2:

Pearson Correlation Matrix among Study Variables (N = 150)

Variable	1	2	3	4
1. Intrinsic Motivation	-			
2. Extrinsic Motivation	.061	-		
3. Overall Motivation	.741***	.713***	-	
4. Academic Performance (%)	.483***	.421***	.614***	-

Note. *N = 150. Overall motivation = mean of intrinsic and extrinsic motivation.*

***p < .001.*

Pearson correlation analysis showed a significant positive relationship between intrinsic motivation and academic performance (**r = .483, p < .001**), indicating that students with higher intrinsic motivation tended to obtain higher percentage marks. Extrinsic motivation also had a significant positive relationship with academic performance (**r = .421, p < .001**), suggesting that external motivational factors were also associated with improved marks. Overall motivation (average of intrinsic and extrinsic) showed a stronger positive relationship with academic performance (**r = .614, p < .001**). The correlation between intrinsic and extrinsic motivation was not significant (**r = .061, p = .461**), indicating that these two forms of motivation operated relatively independently in this dataset.

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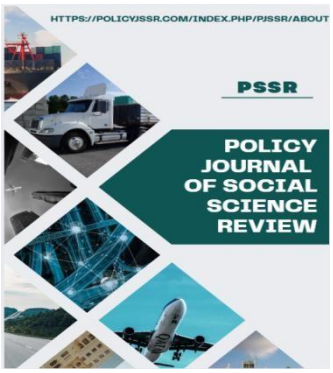

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Table 3 :

Multiple Regression Analysis Predicting Academic Performance (N = 150)

Predictor	B	SE	t	p
Constant	45.64	3.59	12.71	< .001
Intrinsic Motivation	6.11	0.86	7.11	< .001
Extrinsic Motivation	4.32	0.71	6.08	< .001

Note. Dependent Variable = Academic Performance (%).
B = Unstandardized coefficient; SE = Standard Error.

Multiple regression analysis was conducted to determine the predictive influence of intrinsic and extrinsic motivation on academic performance. The regression model was statistically significant **F (2,147) = 46.50, p < .001**) and explained **38.7%** of the variance in academic performance (**R^2 = .387; Adjusted R^2 = .379**). Intrinsic motivation significantly predicted academic performance (**B = 6.109, p < .001**), indicating that a one-unit increase in intrinsic motivation score increased academic percentage marks by approximately 6.11 points**,** holding extrinsic motivation constant. Extrinsic motivation also significantly predicted academic performance (**B = 4.324, p < .001**), indicating that a one-unit increase in extrinsic motivation increased academic marks by approximately 4.32 points**,** controlling for intrinsic motivation.

These findings suggest that while both types of motivation are important, intrinsic motivation plays a slightly more influential role in predicting academic success among secondary school students.

Hypothesis Testing

H_1: Supported: Intrinsic motivation significantly predicted academic performance ($p < .001$).

H_2: Supported: Extrinsic motivation significantly predicted academic performance ($p < .001$).

Discussion of Findings

The findings of the present study indicate that student motivation is significantly related to academic performance among secondary school students. The positive relationship between overall motivation and students' percentage marks confirms that motivated learners tend to achieve better academic outcomes. This finding supports the central assumptions **of** Self-Determination Theory (SDT), which posits that motivation enhances persistence, engagement, and effort in learning activities (Dimitropoulou, P., et al, 2025). When students feel motivated, they are

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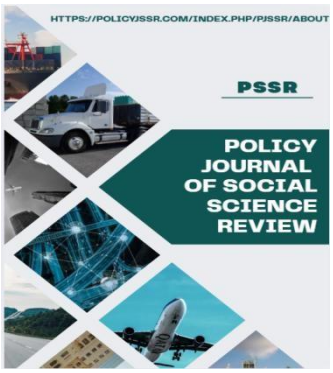

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more likely to invest time and cognitive effort in their studies, remain focused on academic tasks, and demonstrate improved performance in examinations.

The results further reveal that intrinsic motivation has a stronger predictive influence on academic performance compared to extrinsic motivation. This finding confirms previous research suggesting that students who learn out of interest, curiosity, and enjoyment tend to demonstrate deeper engagement and sustained academic effort (Affuso, G., et al, 2025). Intrinsically motivated students often engage in learning for personal satisfaction rather than external rewards, which promotes deeper cognitive processing and better long-term academic outcomes. From the perspective of Self-Determination Theory, intrinsic motivation reflects the fulfillment of basic psychological needs autonomy, competence, and relatedness that support optimal learning and development (Ali, A., et al, 2026).

At the same time, the study found that extrinsic motivation also significantly predicts academic performance**.** This confirms existing literature suggesting that external incentives such as grades, recognition, and rewards can positively influence students' academic behavior when implemented within supportive educational environments (Stavropoulou, G., et al, 2025). Extrinsic motivation may encourage students to meet academic expectations, particularly in structured school settings where performance is frequently evaluated. However, compared to intrinsic motivation, its influence appears somewhat weaker, which aligns with SDT's argument that externally controlled forms of motivation may not sustain engagement as effectively over time. This study extends previous research by examining both intrinsic and extrinsic motivation simultaneously among secondary school students**,** a group that often experiences increased academic pressure and performance expectations. While earlier studies have established the importance of motivation in higher education contexts, the present findings highlight its critical role at the secondary school level as well. In particular, the stronger influence of intrinsic motivation suggests that fostering students' interest and enjoyment in learning may be especially important during adolescence, a developmental stage when academic attitudes and learning habits are still forming.

Some differences between the current findings and previous research may also be explained by contextual and methodological factors**.** The study was conducted within a specific educational context where academic performance is strongly linked to examination results and grading systems. In such environments,

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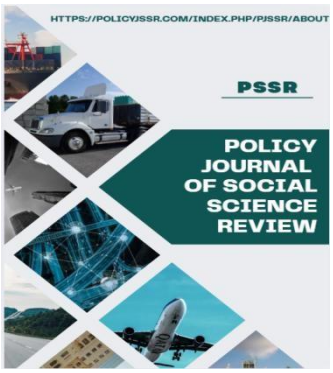

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both intrinsic interest and external academic expectations may jointly shape students' motivation. Cultural and institutional factors may therefore influence how motivation operates within secondary school settings.

Overall, the findings contribute primarily to the contextual understanding of Self-Determination Theory in secondary school education. The results confirm that SDT effectively explains how both intrinsic and extrinsic motivation influence academic outcomes, while also highlighting the stronger role of intrinsic motivation in promoting academic success. These insights suggest that educators should design learning environments that encourage curiosity, autonomy, and meaningful engagement in learning while also providing appropriate external recognition for achievement.

From a practical perspective, the findings imply that teachers and schools should focus on developing intrinsically motivating learning environments**,** such as using engaging instructional strategies, providing autonomy-supportive teaching, and connecting learning activities with students' interests. Such practices may enhance students' motivation and ultimately improve academic performance at the secondary school level.

Recommendations

1. Teachers are encourage to implement instructional strategies that enhance intrinsic motivation, such as interactive learning, student participation, and constructive feedback.
2. Schools are expected develop programs that promote positive motivational climates and recognize students' academic efforts.
3. Parents are advised provide encouragement and structured academic support at home to strengthen students' motivation.
4. Future studies are recommended to examine additional variables such as self-efficacy and study habits to better understand factors influencing academic performance.

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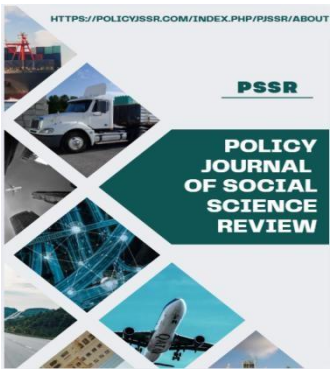

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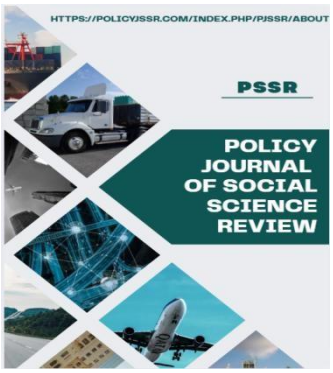

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