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Relationship between Self-Regulated Learning and Academic Performance among Secondary School Students

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ABSTRACT

This study investigates the relationship between self-regulated learning and academic performance among secondary school students. The purpose of the research was to examine how students' ability to regulate their own learning processes influences their academic achievement in school settings. Self-regulated learning is a multidimensional construct that involves planning, monitoring, and evaluating one's learning activities, while academic performance refers to students' achievement levels as reflected in their academic results. The study was conducted on a sample of 300 secondary school students selected through stratified random sampling from District Rawalpindi. A quantitative correlational research design was used, and data were collected through a structured questionnaire based on a Likert scale along with academic records. Pearson correlation coefficient was applied to analyze the relationship between the variables. The findings of the study revealed a moderate positive and statistically significant relationship between self-regulated learning and academic performance ($r = .566$, $p < .01$). This indicates that students who demonstrate higher levels of self-regulated learning tend to achieve better academic results. The results further suggest that self-regulated learning plays an important role in enhancing students' academic success by improving their ability to manage time, set goals, and apply effective learning strategies. The study concludes that strengthening self-regulated learning skills can significantly contribute to improving academic performance among secondary school students. On the basis of the findings, it is recommended that teachers should integrate self-regulated learning strategies into classroom practices to enhance students' academic outcomes. Educational institutions should provide training and awareness programs to develop self-regulation skills among students. Curriculum developers should also include activities that promote independent learning and self-monitoring. The study highlights the importance of fostering self-regulated learning in secondary education to improve overall academic achievement.

Keywords: *self-regulated learning, academic performance, secondary school students, correlation, academic achievement, learning strategies*

INTRODUCTION

Education systems in the twenty-first century increasingly emphasize the development of independent learners capable of managing their own learning processes, particularly at the secondary school level where students transition from teacher-directed instruction to self-directed learning environments. Self-regulated

learning (SRL) is conceptualized as a cyclical and proactive process in which learners set goals, monitor their progress, employ cognitive and metacognitive strategies, and reflect upon their learning outcomes to improve performance. This construct integrates cognitive, motivational, and behavioral dimensions, enabling students to take responsibility for their academic success. Research indicates that students who possess strong self-regulation skills are more effective in organizing their learning activities, maintaining focus, and adapting strategies to meet academic challenges (Panadero, 2017; Schunk & Greene, 2018; Zimmerman & Schunk, 2016). These findings highlight the central role of SRL in enhancing academic performance and promoting lifelong learning skills (Mehmood et al., 2022).

At the secondary school level, the importance of self-regulated learning becomes more pronounced due to increased academic demands and expectations for independent study. Academic performance, commonly measured through examination scores and grades, reflects students' ability to apply knowledge and skills effectively (Mahnaz & Kiran, 2024a). However, academic performance is influenced not only by cognitive ability but also by motivational and behavioral factors. Studies demonstrate that students who employ self-regulated learning strategies such as goal setting, time management, and self-monitoring tend to achieve higher academic outcomes compared to those who do not (Broadbent & Poon, 2015; Dent & Koenka, 2016; Jansen et al., 2019). These findings suggest that SRL plays a critical role in shaping students' academic success (Mehrukh et al., 2022).

The relationship between self-regulated learning and academic performance has been widely examined across various educational contexts, consistently revealing a positive association between these variables. Students who exhibit high levels of self-regulation are more likely to demonstrate persistence, motivation, and engagement in academic tasks, leading to improved academic outcomes (Mahnaz & Kiran, 2024b). Conversely, students with low levels of SRL often struggle with procrastination, ineffective study habits, and poor time management, resulting in lower academic achievement. Furthermore, research indicates that SRL contributes to the development of higher-order thinking skills, such as critical thinking and problem-solving, which are essential for academic success in modern education systems (Mega et al., 2014; Teng & Zhang, 2020; Theobald, 2021).

Motivation is another critical component of self-regulated learning that significantly influences academic performance. Intrinsically motivated students are more likely to engage in self-regulation processes, set challenging goals, and persist in the face of academic difficulties. The interaction between motivation and self-regulation enhances students' ability to achieve academic success. Studies have shown that teacher support and classroom environment play a crucial role in fostering SRL, as they provide opportunities for students to develop independent learning skills and engage actively in the learning process (Schunk & DiBenedetto, 2020; Cleary & Callan, 2022; Zimmerman, 2015). These findings emphasize the importance of creating supportive learning environments that promote self-regulated learning (Nazir et al., 2025).

In developing countries such as Pakistan, the education system often emphasizes rote learning rather than the development of self-regulated learning skills. This approach limits students' ability to become independent learners and negatively impacts their academic performance. In districts like Rawalpindi, where educational institutions vary in quality and resources, the need to promote SRL is particularly significant. Research conducted in similar contexts indicates that students who are trained in self-regulated learning strategies demonstrate significant improvements in academic performance, suggesting that SRL can be effectively developed through targeted interventions (Rasheed et al., 2020; Ahmad & Safdar, 2021; Ali et al., 2022).

The integration of technology in education has further highlighted the importance of self-regulated learning, as students are increasingly required to manage their own learning in digital environments (Sarfaraz et al.,

2025). Online and blended learning contexts demand higher levels of self-regulation, as students must independently plan, monitor, and evaluate their learning activities. Studies have shown that students with strong SRL skills perform better in digital learning environments due to their ability to manage distractions and maintain focus on academic tasks (Broadbent, 2017; Barnard-Brak et al., 2018; Kizilcec et al., 2017).

Despite the extensive research on self-regulated learning, there is a need for more studies focusing on its relationship with academic performance at the secondary school level in Pakistan. Understanding this relationship can provide valuable insights for educators and policymakers, enabling them to design effective interventions that promote self-regulated learning and improve academic outcomes (Mahnaz & Kiran, 2024c). Therefore, this study aims to investigate the relationship between self-regulated learning and academic performance among secondary school students in District Rawalpindi (Panadero, 2017; Schunk & Greene, 2018; Zimmerman & Schunk, 2016).

Objectives of the Study

1. To examine the level of self-regulated learning among secondary school students in District Rawalpindi.

2. To analyze the academic performance of secondary school students in District Rawalpindi.

3. To determine the relationship between self-regulated learning and academic performance among secondary school students.

Hypotheses

H_1: There is no significant relationship between self-regulated learning and academic performance among secondary school students.

H_2: There is no significant difference in academic performance based on levels of self-regulated learning.

H_3: Self-regulated learning does not significantly predict academic performance among secondary school students.

Significance of the Study

This study is significant for students, teachers, policymakers, and researchers. It provides students with insights into how self-regulated learning strategies can improve their academic performance and learning outcomes. For teachers, it offers practical guidance on instructional strategies that promote independent learning and student engagement in classrooms. For policymakers, the findings can inform curriculum development and educational reforms aimed at integrating SRL into teaching practices. Furthermore, the study contributes to the existing literature by providing empirical evidence from the secondary school context in District Rawalpindi. It also serves as a foundation for future research in the field of educational psychology.

LITERATURE REVIEW

Concept of Self-Regulated Learning

Self-regulated learning is a multidimensional construct that involves learners actively controlling their cognitive, motivational, and behavioral processes to achieve academic goals. It enables students to become independent learners capable of adapting to various educational challenges. Research indicates that SRL is essential for academic success in modern education systems as it promotes active engagement and strategic learning behaviors (Panadero, 2017; Zimmerman & Schunk, 2016; Schunk & Greene, 2018). Furthermore, SRL is characterized by the integration of goal setting, self-monitoring, and self-reflection processes, which collectively enhance learning outcomes. These processes allow students to take responsibility for their learning and continuously improve their performance.

Theoretical Framework of Self-Regulated Learning

The theoretical foundation of SRL is rooted in social cognitive theory, which emphasizes the interaction between personal, behavioral, and environmental factors. This framework highlights the role of self-efficacy, motivation, and self-reflection in shaping learning behaviors. According to this theory, students who believe in their abilities are more likely to engage in self-regulated learning processes. Research suggests that the cyclical model of SRL, which includes forethought, performance, and self-reflection phases, provides a comprehensive understanding of how students regulate their learning (Bandura, 2018; Schunk & DiBenedetto, 2020; Cleary & Callan, 2022).

Components of Self-Regulated Learning

Self-regulated learning consists of cognitive, metacognitive, motivational, and behavioral components. Cognitive strategies include rehearsal and elaboration, while metacognitive strategies involve planning, monitoring, and evaluating learning activities. Motivation influences students' persistence and engagement, and behavioral components include time management and resource utilization. Research indicates that the effective integration of these components significantly enhances academic performance (Dent & Koenka, 2016; Teng & Zhang, 2020; Jansen et al., 2019).

Academic Performance in Secondary Education

Academic performance is a key indicator of students' success in educational settings and is influenced by multiple factors, including cognitive abilities, motivation, and learning strategies. It reflects students' ability to apply knowledge and skills effectively in academic tasks (Mahnaz, 2023). Studies suggest that students who employ effective learning strategies, such as self-regulated learning, achieve higher academic outcomes compared to those who rely solely on traditional methods (Broadbent & Poon, 2015; Mega et al., 2014; Theobald, 2021).

Relationship between SRL and Academic Performance

Numerous studies have established a positive relationship between self-regulated learning and academic performance. Students who possess strong SRL skills are more likely to achieve higher academic outcomes due to their ability to manage learning tasks effectively. Research indicates that SRL enhances students' engagement, motivation, and persistence, which are critical for academic success (Jansen et al., 2019; Broadbent, 2017; Barnard-Brak et al., 2018).

Empirical Evidence from Previous Studies

Empirical studies across different educational contexts consistently demonstrate that self-regulated learning significantly improves academic performance. For instance, research has shown that students who engage in goal setting and self-monitoring achieve better academic results. Similarly, studies conducted in online learning environments indicate that SRL skills are essential for academic success in digital contexts (Kizilcec et al., 2017; Rasheed et al., 2020; Ahmad & Safdar, 2021).

Role of Teachers in Promoting SRL

Teachers play a crucial role in fostering self-regulated learning by providing guidance, feedback, and opportunities for independent learning. Effective teaching strategies, such as scaffolding and formative assessment, help students develop SRL skills (Mahnaz et al., 2025a). Research indicates that teacher support significantly enhances students' motivation and engagement in learning (Schunk & DiBenedetto, 2020; Mahnaz et al., 2025b; Cleary & Callan, 2022; Teng & Zhang, 2020).

Challenges in Developing SRL

Despite its importance, many students face challenges in developing self-regulated learning skills. These challenges include lack of motivation, limited awareness, and traditional teaching methods that do not promote independent learning. Addressing these challenges requires targeted interventions and supportive learning environments (Ali et al., 2022; Cleary & Callan, 2022; Mahnaz et al., 2025c; Teng & Zhang, 2020).

Research Gap

Although extensive research has been conducted on self-regulated learning, there is limited evidence focusing on its relationship with academic performance at the secondary school level in Pakistan. This study aims to fill this gap by providing empirical data from District Rawalpindi (Panadero, 2017; Schunk & Greene, 2018; Zimmerman & Schunk, 2016).

METHODOLOGY

Research Design

The study adopts a quantitative correlational research design to examine the relationship between self-regulated learning and academic performance. This design is appropriate as it allows for the measurement of variables and the determination of the strength and direction of relationships between them. It provides objective and statistical evidence to support the research findings. Furthermore, it enables the researcher to analyze patterns and associations between variables without manipulating them. The design is widely used in educational research due to its reliability and validity in examining relationships.

Research Philosophy

The study is grounded in positivist research philosophy, which emphasizes objectivity, measurement, and empirical observation. Positivism assumes that reality is measurable and can be understood through scientific methods. This philosophy supports the use of quantitative data and statistical analysis in research. It ensures that the findings are based on observable and verifiable evidence. Additionally, it enhances the credibility and generalizability of the research results.

Population

The population of the study consists of all secondary schools in District Rawalpindi. The district includes approximately 300 secondary schools with an estimated student population of around 15,000. This population provides a diverse representation of students from different socio-economic and educational backgrounds. It includes both public and private schools, ensuring a comprehensive analysis. The large population enhances the generalizability of the findings.

Sample and Sampling Technique

A sample of 300 students is selected using stratified random sampling from 10 secondary schools. Stratification ensures representation from different groups, such as gender and class levels. This technique reduces sampling bias and improves the accuracy of results. The sample size is adequate for statistical analysis and hypothesis testing. It also ensures that the findings can be generalized to the larger population.

Research Tool

A structured questionnaire based on a Likert scale is used to measure self-regulated learning. Academic performance is assessed through students' examination scores obtained from school records. The questionnaire includes items related to cognitive, metacognitive, and motivational aspects of SRL. It is easy to administer and analyze. The tool provides reliable data for statistical analysis.

Validity and Reliability of Research Tool

Content validity is ensured through expert review by professionals in education and psychology. The questionnaire is pilot tested to identify any issues. Reliability is measured using Cronbach's alpha, with a value of 0.70 or higher considered acceptable. These measures ensure the accuracy and consistency of the data. Valid and reliable tools enhance the credibility of the research findings.

Data Collection Procedure

Data is collected through direct administration of questionnaires in selected schools. Permission is obtained from school authorities before data collection. Students participate voluntarily and are informed about the purpose of the study. Confidentiality is maintained throughout the process. The collected data is carefully recorded and organized for analysis.

Data Analysis (Coefficient Correlation)

Pearson correlation coefficient is used to analyze the relationship between self-regulated learning and academic performance. This statistical method determines the strength and direction of the relationship between variables. Data is analyzed using statistical software such as SPSS. The results are interpreted objectively. This method provides accurate and reliable findings.

Ethical Consideration

Ethical guidelines are strictly followed throughout the study. Informed consent is obtained from participants. Confidentiality and anonymity are maintained. Participation is voluntary, and students can withdraw at any time. The study ensures that no harm is caused to participants. Ethical practices enhance the credibility of the research.

DEMOGRAPHIC TABLES

Table 1: Gender Distribution

Gender	Frequency	Percentage
Male	150	50%
Female	150	50%

This table presents the gender distribution of the respondents included in the study. It shows that male and female students are equally represented in the sample, ensuring balance and fairness in data collection. Equal representation helps in minimizing gender bias in the findings. It also allows for meaningful comparison between male and female students. Furthermore, this balanced distribution enhances the validity and reliability of the research results.

Table 2: Class Distribution

Class	Frequency	Percentage
9th	150	50%
10th	150	50%

This table illustrates the distribution of students across class levels in the sample. It indicates that students from both 9th and 10th classes are equally represented. This ensures that the study covers the entire secondary level. It also allows for comparison between different academic stages. Equal distribution reduces bias and improves the generalizability of the findings.

DATA ANALYSIS (OBJECTIVE-WISE)

Objective 1: To examine the level of self-regulated learning among secondary school students

Table 1: Descriptive Statistics of Self-Regulated Learning

Variable	N	Mean	Std. Deviation
Self-Regulated Learning	300	3.68	0.54

The table presents the descriptive statistics of self-regulated learning among secondary school students. The mean score of 3.68 indicates that students demonstrate a moderately high level of self-regulated learning. The standard deviation of 0.54 shows that responses are relatively consistent with limited variability among participants. This suggests that most students possess similar levels of self-regulation skills. Overall, the findings indicate that self-regulated learning is reasonably developed among the sampled students.

Objective 2: To analyze the academic performance of secondary school students

Table 2: Descriptive Statistics of Academic Performance

Variable	N	Mean	Std. Deviation
Academic Performance	300	72.45	8.12

The table shows the descriptive statistics of academic performance of the respondents. The mean score of 72.45 indicates that students, on average, perform at a satisfactory academic level. The standard deviation

of 8.12 reflects moderate variation in students' academic scores. This suggests that while most students perform adequately, there are noticeable differences in achievement levels. The results highlight that academic performance varies across individuals within the sample.

Objective 3: To determine the relationship between self-regulated learning and academic performance

Table 3: Correlation between Self-Regulated Learning and Academic Performance

Variables	Self-Regulated Learning	Academic Performance
Self-Regulated Learning	1	.566**
Academic Performance	.566**	1
Sig. (2-tailed)	—	.000
N	300	300

The table illustrates the relationship between self-regulated learning and academic performance. The Pearson correlation value of .566 indicates a moderate positive relationship between the two variables. The significance value (.000) confirms that the relationship is statistically significant at the 0.01 level. This implies that higher levels of self-regulated learning are associated with better academic performance. The large sample size further strengthens the reliability of the findings.

Objective 4: To test the predictive role of self-regulated learning on academic performance

Table 4: Regression Analysis (Predicting Academic Performance)

Model	R	R^2	Adjusted R^2	Std. Error	
1	.566	.320	.318	6.72	
Predictor			**Beta**	**t-value**	**Sig.**
Self-Regulated Learning			.566	11.87	.000

The regression analysis table shows the predictive effect of self-regulated learning on academic performance. The R value (.566) indicates a moderate relationship between the predictor and outcome variable. The R^2 value (.320) reveals that 32% of the variance in academic performance is explained by self-regulated learning. The beta coefficient (.566) demonstrates a significant positive contribution of self-regulated learning. The significance value (.000) confirms that the model is statistically significant, indicating that self-regulated learning is a strong predictor of academic performance.

DISCUSSION

The findings related to the first objective indicate that secondary school students exhibit a moderately high level of self-regulated learning, suggesting that they are capable of planning, monitoring, and evaluating their learning processes to a reasonable extent. This finding is consistent with previous research which suggests that self-regulated learning develops progressively as students advance in their educational levels. Studies have shown that students at the secondary level tend to demonstrate improved self-regulation due to increased academic demands and cognitive maturity. Moreover, the presence of structured learning environments and teacher support further enhances students' ability to regulate their learning effectively. These findings collectively indicate that while students possess a functional level of self-regulated learning,

there remains potential for further development through targeted instructional strategies and classroom interventions.

The results of the second objective reveal that students demonstrate a satisfactory level of academic performance, with moderate variation among individuals. This suggests that while a majority of students are achieving acceptable academic outcomes, differences in performance exist due to variations in individual characteristics such as motivation, learning strategies, and engagement (Shaheen et al., 2022). Prior studies have consistently highlighted that academic performance is influenced by a combination of cognitive, emotional, and behavioral factors, which explains the observed variability among students. Furthermore, students who actively engage in learning activities and utilize effective study strategies tend to achieve higher academic outcomes compared to their peers. These findings reinforce the idea that academic performance is not uniform and is shaped by multiple interacting factors within the learning environment (Noreen et al., 2025).

The findings of the third objective indicate a moderate positive and statistically significant relationship between self-regulated learning and academic performance, and further demonstrate that self-regulated learning significantly predicts academic achievement. This implies that students who actively regulate their learning processes, such as setting goals, managing time, and monitoring progress, are more likely to achieve better academic results. Previous research strongly supports this relationship, emphasizing that self-regulated learning enhances students' ability to control their learning and remain motivated, leading to improved performance. Additionally, studies conducted in both traditional and digital learning environments confirm that self-regulated learning is a strong predictor of academic success. These findings highlight the critical role of self-regulated learning as both a contributing factor and a determinant of academic achievement among secondary school students (Waheed et al., 2025).

CONCLUSION

The study concludes that self-regulated learning is an essential factor in enhancing academic performance among secondary school students. The findings demonstrate that students possess a moderate level of self-regulated learning, which enables them to manage their learning processes effectively. This indicates that students are developing the ability to plan, monitor, and evaluate their academic tasks, which contributes positively to their overall learning outcomes. However, there remains scope for further improvement through structured guidance and instructional support within the classroom environment.

Furthermore, the study establishes that academic performance among students is satisfactory but varies across individuals due to differences in motivation, engagement, and learning strategies. The significant positive relationship between self-regulated learning and academic performance highlights that students who actively regulate their learning tend to achieve better results. Additionally, self-regulated learning is identified as a strong predictor of academic success, emphasizing its critical role in determining students' achievement levels. Therefore, promoting self-regulated learning should be considered a key priority in secondary education to improve academic outcomes and foster independent learning skills.

FINDINGS

1. The study found that secondary school students exhibit a moderately high level of self-regulated learning, indicating their ability to manage and control their learning processes effectively.

2. The results revealed that students demonstrate a satisfactory level of academic performance, although variation exists among individuals due to differences in learning behaviors and engagement.

3. The analysis showed a moderate positive and statistically significant relationship between self-regulated learning and academic performance, confirming that higher levels of self-regulation are associated with better academic outcomes. Additionally, self-regulated learning significantly predicts academic performance among students.

RECOMMENDATIONS

1. Educational institutions should design and implement training programs aimed at enhancing students' self-regulated learning skills, including goal setting, self-monitoring, and reflective practices. Teachers should provide structured guidance and opportunities that encourage independent learning.

2. Schools should adopt diverse instructional strategies to address individual differences in academic performance, such as differentiated instruction and continuous assessment practices. Efforts should also be made to improve student motivation and engagement in learning activities.

3. Curriculum developers and policymakers should integrate self-regulated learning strategies into the curriculum to strengthen students' academic achievement. Teachers should actively promote strategies that help students plan, monitor, and evaluate their learning, thereby improving academic performance.

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