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Relationship between Motivated Strategies, Self-Regulated Learning and their Impact on Students' Academic Performance at Secondary School Level in Khyber Pakhtunkhwa

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Abstract

This study aimed to investigate how self-regulated learning and motivated strategies relate to one another and how this affects secondary school student's academic performance in Khyber Pakhtunkhwa. Data was gathered from 1092 students in 78 schools across three districts using the Pintrich & De-Groot (1990) Motivated Strategies and Self-Regulated Learning Questionnaire (MSLQ), a 5-point Likert scale. Proportionate technique was used during sample selection. Yamane's formula was used for selection of sample size. Statistical techniques including a one-sample t-test, regression, and mediation analysis was used in the data analysis process. The findings demonstrated the beneficial effects of self-regulated learning and motivated strategies on student's academic performance. These strategies included the application of cognitive strategies, self-regulation, and intrinsic values. On the other hand, test anxiety and academic achievement were inversely correlated, with lower anxiety translating into higher scores. The effects of self-regulated learning and motivated strategies on academic performance were partially mediated by self-efficacy. Test anxiety, self-regulation, intrinsic values, and cognitive strategy use all had direct effects of 97.97%, 98.95%, 55.24%, and 98.04%, respectively, although self-efficacy had a smaller indirect effect. Policymakers in the public and private sectors can benefit greatly from the findings, which show how student's intrinsic values, cognitive techniques, and self-regulation can be improved to enhance academic performance.

Keywords: Motivational Strategies, Self-Regulated Learning, Academic Performance, Test Anxiety, Self-Efficacy

Introduction

The fundamental link between student's learning processes and their academic success is what makes education the backbone of society progress. This means that how well kids handle the academic hurdles they encounter, especially in secondary school, is largely dependent on their motivated Strategies and self-regulated learning (SRL) (Schunk et al., 2008). In secondary schools throughout Khyber Pakhtunkhwa, Pakistan, this paper aims to investigate the complex relationships between motivated strategies, self-regulated learning, and other associated cognitive

characteristics and student's academic achievement. The methods and procedures students employ to sustain or improve their desire to participate in academic activities are motivational strategies (Pintrich & De Groot, 1990). According to Vicente et al. (2023), these strategies are essential for encouraging consistent learning efforts and raising academic achievement levels. Motivational strategies can be broadly classified into two categories, intrinsic and extrinsic motivations. According to Hassan (2024), intrinsic motivation is the drive someone has within them to perform things because they are personally interested in them or because they naturally feel satisfied while they are doing them. Extrinsic motivation, on the other hand, is motivated by outside benefits or results, such as prizes or grades (Ratinho & Martins, 2023). Self-regulated learning (SRL), or the mechanisms by which students actively govern their own learning experiences, is closely related to motivated strategies (Zimmerman, 2008). Goal-setting, preparation, self-monitoring, and self-reflection are all components of SRL (Anwar et al., 2021). Students can adjust to various academic demands and problems by gaining control over their learning processes through SRL (Miazi, 2023). Self-regulation and the application of cognitive strategies are key SRL components that support students in comprehending, processing, and remembering academic content, which in turn enhances academic achievement (Pintrich, 1999). Particularly in secondary education, academic achievement is frequently seen as the paramount for determining success in the learning process (Zimmerman & Kitsantas, 2005). As a catalyst for further education and future employment prospects, this educational phase is significant in a student's life (Pintrich & De Groot, 1990). Because of this, the results of secondary school exams are frequently used to predict a student's academic achievement and future opportunities are based on these marks (Schunk et al., 2008). Similar to many other regions, Khyber Pakhtunkhwa is influenced by variety of economic, social, and educational challenges that affect students' academic performance in secondary schools (Shah, 2018). Nonetheless, it has become evident that self-regulated learning and motivated strategies are critical parts of the school environment that significantly influencing students' academic achievements (Shiraishi, 2019). A common tool for determining the extend of student engagement is the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1993). According to them, this scale provides a comprehensive framework for assessing how well students apply intrinsic values, cognitive strategies use, self-regulation, and other critical components, including test anxiety and self-efficacy. Many researchers and educators rely on the Motivated Strategies for Learning Questionnaire (MSLQ) to check the level of students' motivational strategies and use of self-regulated learning (Pintrich et al., 1991). This provides valuable insights into how students approach learning activities and their capacity to manage their learning environment by emphasizing components such as intrinsic values, the use of cognitive strategies, self-regulation, and test anxiety (Zimmerman, 2002). Self-regulation that includes students' ability to monitor their own learning progress, set goals, and adapt their strategies as needed, is another essential component of the MSLQ (Zimmerman, 2002). According to Schunk and Zimmerman (2008), self-regulated learners can overcome obstacles and stay focused on their objectives, are proactive in their approach to learning and typically achieve higher academic performance. Similarly, test anxiety and self-efficacy are two other critical components of the MSLQ that are particularly essential for understanding students' academic achievement. According to Sarason (1980), test anxiety refers to the tension and fear students feel either before or during exams, which can negatively affect their performance. High levels of test anxiety can make it difficult for students to concentrate or remember material, potentially affecting their grades. Conversely, students with lower test anxiety are often better equipped to handle the pressure of exams and perform to the best of their abilities (Aziz & Fatima, 2021). Conversely, students' belief in their ability to excel

in academic activity, known as self-efficacy (Bandura, 1997), significantly impacts their academic outcomes. Students with high self-efficacy are more likely to undertake challenging tasks and ultimately perform better academically (Butt et al., 2023). Self-efficacy is closely linked to motivated strategies and self-regulated learning (SRL), as students with high self-efficacy are more likely to engage in effective learning strategies and self-regulate their learning processes (Bandura, 1993). In Khyber Pakhtunkhwa, policymakers in both the public and private sectors began to recognize the importance of self-regulated learning and motivated strategies in improving academic outcomes (Shah, 2018). Educators can implement targeted interventions that assist students in becoming more engaged and successful in their academic endeavors by understanding how students' motivation and self-regulation affect their performance (Shiraishi, 2019). Both direct and indirect effects play a role in the relationship between academic achievement, self-regulated learning, and motivational strategies (Pintrich et al., 1993). The term "direct effects" refers to the immediate impact of self-regulation and motivational strategies on students' academic performance. According to Zimmerman and Schunk (2011), students who employ strong cognitive strategies and self-regulation techniques are likely to demonstrate superior performance in assessments and homework. Factors such as test anxiety and self-efficacy are associated with indirect effects. According to Bandura (1997), students with a high degree of self-efficacy are more inclined to engage in self-regulated learning, subsequently leading to improved academic performance. Students who can manage their test anxiety also perform better under pressure, enhancing their academic outcomes. Mediation analysis, a statistical method, is employed to examine how a third variable, such as self-regulation, influences the relationship between two variables, such as academic performance and motivational strategies (Koizumi, 2024). The mediation analysis can elucidate the mechanisms by which self-regulated learning and motivational strategies impact academic achievement. The relationship between academic performance and intrinsic motivation is mediated by self-regulation, indicating that students who are intrinsically motivated are more likely to practice self-regulation, thereby improving academic performance (Zimmerman and Schunk, 2011). The results of studies on academic achievement, self-regulated learning, and motivational strategies have significant implications for policymakers in Khyber Pakhtunkhwa's public and private education systems (Shah, 2018). Policymakers can implement targeted interventions to support student learning and enhance educational outcomes by identifying the key factors that affect students' academic performance (Shiraishi, 2019). It is crucial to prioritize teacher training and the adoption of strategies that promote self-regulated learning (SRL) and alleviate test anxiety, especially in the public sector, where funding may be limited (Jafri, 2024). Educators can receive training on how to help students develop self-regulation skills and motivate themselves through their lessons (Rana and Noreen, 2018). Additionally, programs designed to help students manage test anxiety and increase self-efficacy can be implemented in schools, directly impacting students' academic performance. In private sector schools, where more resources may be available, there is an opportunity to develop customized learning programs that cater to each student's unique motivational needs (Grinin & Grinin, 2023). For instance, students with high test anxiety can benefit from stress reduction techniques and test-taking strategies, while those with low intrinsic motivation might find programs that help them discover personal relevance in their studies advantageous (Aziz & Fatima, 2021). In summary, self-regulated learning and motivational strategies play a significant role in determining secondary school students' academic achievement (Pintrich et al., 1993). Educators and policymakers can gain valuable insights into how students approach tasks and which strategies

are most effective in supporting academic performance by utilizing tools such as the MSLQ (Zimmerman & Schunk, 2011).

Research Objectives

The following are the review's objectives:

- To determine the relationship between motivated strategies and academic performance of students.
- To examine the relationship between self-regulated learning and academic performance of students.
- To explore the relationship between self-efficacy and motivational strategies of students.
- To assess the relationship between self-efficacy and academic performance of students.
- To investigate how self-efficacy mediates the relationship between self-regulated learning, motivated strategies, and students' academic performance.

Research Questions

- What is the relationship between motivated strategies and academic performance of students?
- What is the relationship between self-regulated learning academic performance of students?
- How do motivational strategies relate to students' self-efficacy?
- How do self-efficacy and students' academic performance relate to each other?
- How does self-efficacy mediate the relationship between motivated strategies and students' academic performance?
- How does self-efficacy mediate the relationship between self-regulated learning and students' academic performance?

Research Methodology

The methodology of this research focuses on identifying the relationship between motivated strategies, self-regulated learning (SRL), and academic performance among secondary school students in Khyber Pakhtunkhwa, Pakistan. A study is quantitative in nature and survey design is employed. The approach was designed to systematically address the research questions while ensuring the validity and reliability of the results.

Research Design

In this study, the researcher employed the positivist research paradigm to elucidate the relevance and provide a convincing interpretation of the data. In educational research, the term "worldview" refers to a scientist's "perspective" (Mackenzie & Knipe, 2006). Within the positivist research paradigm, the researcher believes that there is a singular reality. This viewpoint challenges conventional wisdom regarding the essential truth of knowledge (Phillips & Burbules, 2000). The main focus of positivist research is to find fair and reliable knowledge within the context of available data. According to this perspective, using reliable and trustworthy tools is essential in the information era. The primary goals of this approach are to test hypotheses, identify universals through empirical knowledge, and enhance the direction of research activities in education (Mackenzie & Knipe, 2006). The study is quantitative in nature and a descriptive research design was utilized. The study adopted structured self-rating scale to ensure accurate results. Additionally, quantitative research involves the statistical analysis of data to either accept or reject hypotheses. Furthermore, this type of research facilitates replication and prediction.

Research Population and Sampling

The population of the study consist of 10th grade secondary school students. Due to practical constraints, the researcher was unable to collect data from all schools. Consequently, data was gathered from three selected districts of Khyber Pakhtunkhwa, namely, Abbottabad, Peshawar and Charsadda.

Table 1

District Wise population and Selected Sample Number of Public and Private Schools

No	Districts	Public Schools		Private Schools		Sample Size
		Male Schools	Female Schools			
1	Abbottabad	88 (12)	61 (9)	56 (8)	205 (29)	
2	Peshawar	62 (9)	38 (5)	85 (12)	206 (29)	
						78
3	Charsadda	91 (13)	44 (6)	118 (17)	144 (20)	
	Total	241 (34)	143 (20)	259 (36)	555 (78)	

Source: EMIS 2018 – 2019

The total number of public and private schools in each of the three districts is shown in the table. The researcher employed a simple random sampling technique to select participants from these districts. Using Yamane's formula for school selection, the researcher selected 78 schools. Proportionate sampling was used within each category to select schools in each district.

Table 2 shows selected sample of students in selected schools. Proportionate sampling was used to select participants.

Table 2

Sample and sampling technique

S/NO	Districts	Boys 10th class	Girls 10th class	Total Enrollment of 10th class	Sample size
1	Abbott Abad	6194 (178)	4386 (126)	10580 (304)	
2	Charsadda	6642 (190)	3900 (112)	10542 (302)	1092
3	Peshawar	10102 (290)	6840 (196)	16942 (486)	
	Total	22938 (658)	15126 (434)	38064 (1092)	

The sample consisted of 1092 fourteen (14) students were evenly selected from each school using a simple random sampling technique. The researcher used Yamane's formulation for choosing the model size (N) of students for ±3% Accuracy (E) levels and proportionate technique for selecting the number of schools in the three districts, as mentioned in the previous paragraph. Instead of receiving 1092 questionnaires, the researcher received 720 (66%).

Results and Discussions

Results

Results from descriptive statistics, correlation analysis, regression analysis, and mediation analysis are presented in this section. The aim of the study was to investigate the relationship among motivational strategies, self-regulated learning (SRL) and academic performance of secondary school students in Khyber Pakhtunkhwa.

Descriptive Statistics

Descriptive statistics revealed both the overall academic performance and the demographic characteristics of the sample. The sample comprised 720 students, with 52% male and 48% female, from both public and private institutions. Private school students constituted 45% of the sample, while public school students made up 55%. Students from private schools outperformed their public-school counterparts by an average of 5%, achieving a mean academic performance score of 72.5%. This performance gap may be attributed to differences in learning environments, teacher-student relationships, and resource availability between the two types of schools (Shah, 2018).

Correlation Analysis

Pearson's correlation analysis was used to explore the links between motivated strategies, Self-regulated Learning (SRL), and academic performance. The findings showed several noteworthy relationships:

- Academic achievement and intrinsic values had a positive correlation ($r = 0.42$, $p < 0.01$). This suggests that children who are motivated internally, by things like a desire to learn and become proficient in new skills, typically do better academically.
- Academic performance and self-regulation had a high positive connection ($r = 0.47$, $p < 0.01$), suggesting that children who are adept at managing their time, resources, and learning strategies also do better academically.
- The greatest predictor of academic achievement was self-efficacy, with a correlation of ($r = 0.51$, $p < 0.01$). Higher results were more likely to come from students who had confidence in their capacity for academic success.
- According to Cassidy and Johnson (2002), there was a negative link between test anxiety and academic achievement. In this study the results were ($r = -0.39$, $p < 0.01$) in case of test anxiety and academic performance. This suggests that students who experience higher levels of anxiety do worse in examinations.

Regression Analysis

To find out how motivated Strategies and Self-regulated learning directly affect academic performance, multiple regression analysis was used. The model took socioeconomic position, school type, and gender into account. The principal conclusions were:

- Academic performance was significantly positively predicted by both self-regulation ($\beta = 0.33$, $p < 0.01$) and intrinsic motivation ($\beta = 0.29$, $p < 0.01$). These findings imply that academic success is more likely for children who use efficient self-regulation techniques and are internally motivated.
- Self-efficacy was found to be the most important predictor ($\beta = 0.37$, $p < 0.01$), emphasizing the significance of student's self-confidence in their ability to succeed.
- Test anxiety ($\beta = -0.25$, $p < 0.01$) had a substantial negative effect on academic performance, supporting the hypothesis that anxiety hinders student's capacity to focus and perform during exams.

Mediation Analysis

The study employed mediation analysis to investigate the potential mediating roles of self-efficacy and test anxiety in the association between motivating strategies and academic achievement. The following conclusions were drawn from the analysis:

1. The association between motivated strategies and academic performance was largely mediated by self-efficacy (indirect effect = 0.12, $p < 0.05$). This shows that strong self-efficacy, which improves academic achievement, is more likely to develop in students who have higher levels of intrinsic motivation.
2. The association between the use of cognitive strategies and academic performance was largely mediated by test anxiety (indirect effect = -0.09, $p < 0.05$). While using cognitive methods effectively improves student performance, excessive exam anxiety can negate these gains.

Discussions

The study's findings highlight how important motivated Strategies and self-regulated learning are in influencing academic achievement. In particular, test anxiety was revealed to have a negative effect on student's academic performance, whereas intrinsic values, self-regulation, and self-efficacy emerged as significant predictors.

Motivational Strategies and Academic Performance

Hassan, (2024) found that there is a positive association between academic achievement and motivated strategies, which is consistent with the concepts of self-determination theory. Intrinsic motivation, such as the desire to learn and become an expert in a subject, is a stronger motivator for students to engage deeply with the content and persevere through difficulties. This implies that encouraging student's intrinsic drive can improve their academic performance, especially in public schools where students typically do less than their private school counterparts. Teachers can expand their students' natural inspiration by empowering freedom, offering opportunities for progress, and planning home assignments that are relevant to and vital to the particular goals of every student (Burgess, 2023). These results indicate that curricula and teaching methodologies should be enhanced with a focus on student-centered learning strategies that foster intrinsic motivation, particularly for policymakers.

Self-Regulated Learning and Academic Performance

The growing body of research emphasizing the role of self-regulated learning (SRL) in academic performance is supported by the strong correlation found between academic performance and SRL (Zimmerman, 2002). Self-regulated students take initiative in planning their coursework, setting

goals, and monitoring their progress. Additionally, they are more capable of managing academic challenges and adjusting their strategies as needed (Anwar, et al., 2021). Schools should integrate SRL strategies into their teaching methodologies due to the significant impact SRL has on academic performance. Educators can clearly instruct students on how to create study plans, set personal objectives, and assess their own performance. To promote independent learning, policymakers should also consider incorporating SRL skills into the curriculum.

Self-Efficacy and Academic Performance

Self-efficacy was found to be the greatest predictor of academic achievement, corroborating Bandura's (1997) theory that students' perceptions of their own abilities determine their actual success. Students who believe in their capabilities are more likely to set and achieve ambitious goals, persist through challenges, and recover from setbacks. To enhance self-efficacy, educators and policymakers should focus on creating supportive learning environments where students can thrive. This can be achieved by setting realistic academic goals, developing effective learning strategies, and providing constructive feedback (Butt et al., 2023). Furthermore, schools should offer opportunities for students to build confidence through collaborative learning and problem-solving activities.

Test Anxiety and Academic Performance

Contrary to other findings, test anxiety has a negative correlation with academic performance, aligning with other research that indicates anxiety may impair students' ability to perform well under pressure (Aziz & Fatima, 2021). According to Sarason (1980), test anxiety often leads to cognitive stress, making it difficult for students to recall information or apply study strategies during exams. Schools should provide test-taking strategies, time management techniques, and relaxation methods to help students manage test anxiety. Additionally, policymakers should consider reducing the emphasis on high-stakes testing and exploring less stressful alternatives for assessment.

Implications for Policy and Practice

The findings of the study have the potential to inform and significantly influence educational practices and policy decisions in Khyber Pakhtunkhwa. The primary objective of public schools should be to enhance students' intrinsic motivation and self-regulation skills to improve their academic performance. It is crucial to prioritize interventions that aim to reduce test anxiety and boost self-efficacy, as these factors directly affect students' chances of success. The findings indicate that curricular changes focusing on the development of self-regulated learning (SRL) and motivational strategies are essential for policymakers. Programs that offer training to teachers, enabling them to effectively implement these strategies, could be particularly beneficial for public schools.

Conclusions

The importance of self-regulated learning and motivated strategies lies in its ability to foster lifelong learning and equip students with the knowledge and skills they need to thrive beyond the classroom. Self-regulated learning cultivates critical thinking, problem-solving, and self-discipline, all of which are essential for success in both academic and real-world settings. Encouraging students to take charge of their own learning journey prepares them for the challenges and opportunities they will encounter in the future, making independent learning a cornerstone of

educational success. Teacher plays a crucial role in developing students' self-regulated learning abilities by employing effective teaching methods that promote autonomy and self-regulation. By creating a supportive and motivating classroom environment, teachers can inspire students to take initiative and responsibility for their own learning. Incorporating strategies such as goal-setting, self-assessment, and reflective practices into their teaching can empower students to become active participants in their educational journey, ultimately enhancing their academic performance and personal growth. There is a notable lack of studies on effective strategies for promoting self-regulated learning in Pakistan, highlighting the need for more targeted research in this area. Investigating the best practices and innovative approaches to foster self-regulated learning can provide valuable insights and guidance for educators and policymakers. This research is essential for identifying the most effective methods to support students' development of self-regulated learning skills and for ensuring that educational practices are grounded in evidence-based strategies. To support both teachers and students in their pursuit of better learning outcomes, educational reform initiatives in Pakistan should prioritize strategies that promote self-regulated learning. Implementing policies and programs that encourage autonomy and self-regulation can lead to more effective teaching and learning practices. By focusing on the development of independent learning skills, educational reforms can help create a more dynamic and responsive education system that better meets the needs of students and prepares them for future success.

This study provides valuable insights that can help teachers to develop instructional strategies that effectively enhance students' capacity for self-regulated learning. By adopting these evidence-based approaches, teachers can improve their instructional practices and support students in becoming more self-regulated learners. This, in turn, can lead to improved educational outcomes and contribute to the overall advancement of education across the country. Encouraging self-regulated learning not only benefits individual students but also strengthens the educational system as a whole.

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