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EFFECT OF SELF-REGULATED LEARNING STRATEGIES ON GRADE XI STUDENTS' ACADEMIC ACHIEVEMENT

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Abstract

Self-regulated learning strategies engage students in learning process which ultimate results academic achievement. A causal comparative study aimed to find out the effect of self-regulated learning strategies i. e. goal setting and memory strategies, on grade XI students' academic achievement. A sample of two hundred and twenty-nine (229) grade XI students was selected randomly. Five-point Likert scale was used for data collection. Students' obtained marks in annual examination were taken as their academic achievement. Data analyzed through multiple regression revealed the statistically significant effect of goal setting and memory strategies on students' academic achievement. Students of grade XI are recommended to experience goal setting and memory strategies as self-regulated learning strategies to improve their academic achievement. Teachers teaching grade XI students are recommended to facilitate their students to experience goal setting and memory strategies as self-regulated learning strategies to improve their academic achievement.

Keywords: *Academic achievement; self-regulated learning strategies; goal setting; memory strategy.*

Introduction

Self-regulated learning (SRL) refers to the process through which learners manage their learning themselves by regulating their learning style. SRL is very helpful for students to achieve their educational aims because it enables them to become active participants in their own learning journey (Anthonysamy, Koo, & Hew, 2020). Dignath and Buttner (2018) defined self-regulated learning as the way students approach their learning, forward towards the achievement of their educational goals, and evaluate of their learning performance. By developing self-regulation, students can become more independent, motivated in learning experiences (Sinkkonen, Merja, & Annukka 2024).

Self-regulated learning is a process to manage thoughts, behaviors, and emotions in order to learn effectively (Ariel, & Karpicke, 2018). Self-regulated learning is essential to manage learning style. It helps students to develop their learning habits which enable them to be high achiever in academic field (Broadbent, 2017). Cleary, and Kitsantas (2017), Cleary, Velardi, and Schnaidman (2017) have reported that students could improve their academic achievement by applying self-regulated learning strategies in their learning habits. Ambitious students would excel in learning if they experience self- regulated strategies during their study (Butler, 2023).

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Intellectual selection of self-regulation has been considered a significant contributor in improved learning (Ha, Roehrig, & Zhang, 2023).

Self-regulated learning is a process which is adopted carefully by the learner (Domenech-Betoret, et al., 2017). It is also a cyclic process where learner i. plans for his learning, ii. monitors his performance, and then iii. comments whatever he or she has achieved (Hadwin, et al., 2017).

According to Alvi and Gillies (2023) different strategies are engaged in learning by students. Every individual can adopt or adapt strategies as per his learning requirements. Successful learners always implement variety of strategies to meet their goals. It is important to know that at primary level students do not have the repertories of strategies (Teng, & Zhang, 2018). It takes time for students to be comfortable enough for adopting different strategies as per requirement. A teacher can play the role of scaffolding by giving them training how to use different strategies at the time of different learning environment (Dorn, & Soffos, 2023). Successful strategic learners always accept their learning and achievement outcomes. They monitor their progress and own their responsibilities (Winne, 2017).

Self-regulated learners also seek help from others but they remain autonomous in this process. It is contrary to the belief that self-regulated learners do not seek help from others (Winne, 2018). Actually, the thing apart them from others is their autonomous decision-making ability. Learners' self-evaluation enables them be independent decision maker about the adjustment of their strategies and the future plan (Estévez, et al., 2021).

According to Garba (2016), Self-Regulated Learning Strategies (SRLS) refer to learners' skills that they apply for effective learning. Some self-regulating learning strategies are memory strategy, goal setting, self-evaluation, seeking assistance, environmental structuring, learning responsibility, and organizing (Mutua, 2014). The students who practice self-regulated learning strategies find value in their learning ways and can improve their academic outcomes. Academic achievement is the fruit of using self-regulation learning techniques (El-Adl, & Alkharusi, 2020).

Self-regulated learning strategies are helpful for both learning and accomplishing goals (Martínez-López, et al., 2024). These strategies should be in practice of a learner so that they may achieve their learning goals timely and efficiently (Wei, Saab, & Admiraal, 2023). Learners who practice designed strategies for learning have better educational achievement or those students who follow others show better educational achievement (Yamada, et al., 2017).

Goal setting as a SRL strategy includes analyzing the task of learning, setting specific learning goals, and planning the strategy to be used to achieve goals (Ha, et al., 2023). The setting of objectives can be considered as the norms regulating the actions of an individual (Schunk, 2013). Achieving objectives in the school can be as easy as getting good grades on an examination or as complicated as attaining a broad knowledge of a topic (Khan, Shah, & Sahibzada, 2020).

Achievable short-term goals are often used to achieve long-term goals. For instance, if a learner sets a long-term goal of doing well in an exam, then he or she may also set achievable goals, such as studying for a certain amount of time and using specific study strategies to help ensure exam success. Researcher also suggests that encouraging learners to set short-term learning goals can be an effective way to help students monitor their progress (Ha, et al., 2023).

Memory strategy refer to techniques which help learners to store new information in memory and retrieve it when necessary (Lim, et al., 2023). Memory strategy relates to any one of

a wide range of methods which are considered to help individuals retain information. There are many strategies that improve memory (Estévez, et al., 2021).

Self-regulated learning strategies play a crucial role in learners' academic success. Self-regulated learning strategies affect learners' ability to manage their own learning process effectively (Dorn, & Soffos, 2023). Academic achievement is significantly affected by self-regulated learning strategies (Wei, et al., 2023). Self-regulated learning strategies include various types. Two of them, goal setting and memory strategies, are considered more important regarding the improved academic achievement (Butler, 2023).

Various factors affecting students' academic achievement (Mutua, 2014). Among them some are: motivation, self-regulating strategies, school environment, anxiety, emotions, and individual differences (Anthonysamy, et al., 2020). Some non-cognitive factors such as attitude, strategies, and behaviours improve and hiders the success in academic achievement (Winne, 2017). The students who can manage their learning are predicted good academic achiever. This prediction should be supported with scientific evidences. To have a scientific evidence present study was conducted to find out the effect of self-regulated learning strategies on grade XI students' academic achievement.

Literature Review

The ability to control one's own learning process is known as self-regulation (Broadbent, 2017). Self-regulating strategy keeps the students engaged in learning. There is a significant role of self-regulated learning strategies effecting academic achievement (Ha, et al., 2023). Self-regulated learning strategies are very much helpful for learners to supervise their learning. Students studying with the help of these strategies improve performance in the achievement of educational objectives. They show improvement in academic achievement in their results (Butler, 2023).

Self-regulation is significant to achieve learning objectives. Self-regulation is very important because learners proactively improve and evaluate their performance. In this dynamic era, students who actively use effective learning strategies are better equipped to adapt to the evolving demands of education and the world around them (Dorn, & Soffos, 2023). By using the learning strategies and adjusting them as needed, students can enhance their overall academic success (Panadero, et al., 2017). Those students who are weak in focusing their attention and maintaining their educational consistency are mostly pulled right or left by the immediate impulses and cannot achieve their set objectives. Such students can also not direct their attention where it is needed most (Estévez, et al., 2021). Students' poor in the use of self-regulated learning strategies may find poor and un healthy study conditions, confusion and difficult lessons and text insurmountable obstacles for them and could not be able to navigate these conditions and discover the suitable solution (Sun, et al., 2018).

Self-regulated learning strategies are helpful to achieve academic achievement (Khan, et al., 2020). Impact of Self-Regulated Learning Behavior on the Academic Achievement of University Students. Shen and Wang (2024) defined academic achievement as the extent to which a teacher or student attain educational objectives which may be measured in form of marks in the final examination (Teng, & Zhang, 2018). Academic achievement is measured up generally through examinations and formal assessment strategies. It is not definite and agreed upon method of assessing academic achievement.

The first phase of this cycling process is to plan, set goals, and decide strategies for a task. Learners who plan for their learning would ask themselves what should they learn, how

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should they learn, where, when, and how should they learn (Kizilcec, et al., 2017). At the first step, they are targeting their learning objectives and goals. They focus practice what they have learned. Additionally, they will choose what they wish to learn and how they will accomplish the goals they have set (Lin, et al., 2017). In order to achieve their goals on time, learners need to plan about how to get there and what strategies to use (Long & Aleven, 2017). Goals can be divided into two phases; short term and long term. When the learners become proficient in the phase of planning; they would have improved learning as a result (Muis, et al., 2018).

Second phase of cyclic process of self-regulated learning is to define the strategies to analyze their performance. Usually, learners have already chosen desired goals and approaches to move forward with confidence. The learner does self-observation throughout this phase in order to determine where and when his learning is still effective (Panadero, 2017). He learned more for instance when reading in a quiet library than reading loudly at home. Learners also have to accept the fact that activities never go seamless (Ha, et al., 2023). Learners also have to accept the reality that learning method is more important than learning material at this stage because method will make them successful for learning a material (Panadero, et al., 2018).

The third phase of the self-regulated learning cycle is to reflect on ones' academic performance. Whatever the extrinsic learning outcomes are, do the majority of learners embrace them? Students should be taught how to think during the learning process in addition to the significance of extrinsic performance or grades (Panadero, et al., 2017). They ought to consider the tactic they have chosen. Adopting a strategy that falls short of goals can be the cause of poor performance. (Sun, et al., 2018).

Mutweleli (2014) states that self-regulating learning strategies include, goal setting, memory strategy, self-evaluation, seeking assistance, environmental structuring, learning responsibility, and organization. Present study focused only two strategies i. e. goal setting and memory strategy they play a key role in learning (Panadero, 2017). Goals play the role of guidepost for learners to evaluate learning performance or check their progress. Setting goals is to bring prior knowledge in use for the solution of difficult task on the basis of ability and prior knowledge (Lin, et al., 2017). Students may think how long this activity will continue and what strategies will be helpful to solve the problem effectively and efficiently (Muis, et al., 2018).

Goal Setting Strategies

As SRL strategy, goal setting entails assessing the learning problem, establishing precise learning objectives, and organizing the approach that will be taken to reach the objectives. Reaching academic goals can be as simple as obtaining high test scores or as complex as gaining in-depth understanding of a subject. Long-term objectives are frequently attained by using attainable short-term objectives (Schunk, 2013).

One of the most popular strategies for self-regulation is goal setting (Shen, & Wang, 2024). According to Urgo and Arguello (2024) goal setting encourages more involvement in self-regulated learning, which improves learning. Students' success is elucidated how well they manage their learning. Goals are expected learning outcomes. Goal-setting and successful student outcomes are significantly correlated with self-regulated learning (Bloom, 2013).

Memory Strategies

Memory strategy is also very important in learning process. Students need to remember plenty of information to improve academic achievement. They try different strategies and techniques to improve their memorization. Improved memory or memory strategy may result

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improved academic achievement. Memory and learning are two different things (Khan, et al., 2020).

Memory strategy helps users retain knowledge. Academic intellect is regulated by the use of memory strategies. According to Garba (2016) memory regulation is the term used to describe the range of cognitive and metacognitive actions individuals are involved in as a way of adjusting continually enhancing their mental abilities.

SRL strategies help learners to acquire quicker and more efficient to achieve their academic goals. It permits them to oversee learning tasks and have a concrete learning strategy. Students in high school are capable of effectively handling their learning by implementing these self-regulated learning practices (Lim, et al., 2023). Thus, the study aims to determine the impact of high school students' use of self-regulated learning strategies i. e. goal setting and memory strategy on their academic performance.

Theoretical framework

The theoretical framework of this study is derived from the research of Bandura and Zimmerman. In order to achieve an excellent academic achievement, learners need to develop self regulated learning strategies (Elesio, 2023).

Conceptual Framework

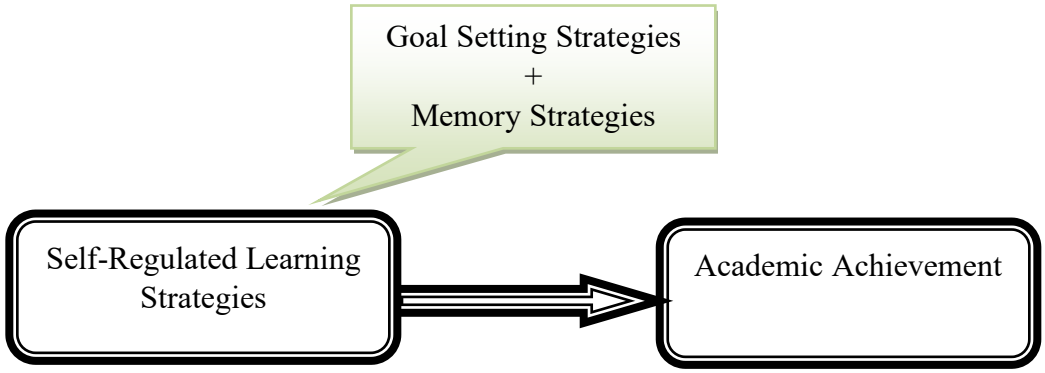


Figure 1: *Conceptual framework of the study*

Figure 1 shows the conceptual framework of the study. Study was conducted on one independent variable named as self-regulated learning strategies. Independent variable was the composition of two types of goal setting strategies and strategies memory strategies. The effect of independent variable was measured on one dependent variable titled as academic achievement. The figure is self-explanatory of the study variables and their relationship with each other.

Objectives

Study was conducted to:

1. Find out the effect of goal setting strategies as self-regulated learning strategy on grade XI students' academic achievement.
2. Find out the effect of memory strategies as self-regulated learning strategy on grade XI students' academic achievement.

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Hypothesis

Data were collected to test the following hypothesis:

H_o1: There is no effect of goal setting strategies as self-regulated learning strategy on grade XI students' academic achievement.

H_o2: There is no effect of memory strategies as self-regulated learning strategy on grade XI students' academic achievement.

Methodology

The study adheres to the post-positivism philosophical research paradigm, which emphasizes quantitative measurement of reality, replacing qualitative expressions with numerical data. A survey method causal comparative retrospective study was conducted to find out the effect of goal setting and memory strategies as self-regulated learning strategies on grade XI students' academic achievement. The study was causal comparative because both the cause and effect had already been occurred. Students adopted goal setting and memory strategies during the academic year for their learning.

This study was conducted through survey method. The targeted population of the study was of grade XI students of district Faisalabad. Five-point Likert scale was used to collect data from two hundred and twenty-nine (229) male and female students randomly. Obtained marks of the same (229) grade XI students in their annual examination conducted by Board of Intermediate and Secondary Education (BISE) Faisalabad in the academic year 2023–2024 were taken as academic achievement. Liner regression was the primary statistic of the study for analyzing the data.

Data Analysis

Data were analyzed by applying simple regression analysis to find out the effect of goal setting and memory strategies as self-regulated learning strategies on secondary school students' academic achievement. The detail analysis and its interpretation have been given below.

Table 1: *Simple linear regression analysis to find out the effect of goal setting and memory strategies as self-regulated learning strategies on secondary school students' academic achievement*

Model	**B**	**R^2 Square**	**ANOVA**		
		.495	df	F	Sig.
1					
Regression			2	110.822	.000
Residual			226		
Academic Achievement	-281.315				
Goal Setting Strategies	143.627				
Memory Strategies	110.280				.000

Note: n=229, and p=.005

Table 1 shows the statistical results calculated from multiple linear regressions to predict secondary school students' achievement due to goal setting and memory strategies as self-regulated learning strategies. A statistically significant regression equation was found (F (226) = 110.822, p<.005) with an R^2 of .495. Sample of the study predicted grade XI students' academic achievement equal to -281.315, and 110.280 (memory strategies) + 143.627 (goal setting strategies) where academic achievement was measured in annual BISE result marks. Students' academic achievement and their goal setting and memory strategies are statistically significantly

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correlated with one another. So, students' goal setting strategies and memory strategies as their self-regulated learning strategies have statistically significant effect on their academic achievement. So, the sampled data failed to support the null hypotheses H_o1: There is no effect of memory strategies as self-regulated learning strategies on grade XI students' academic achievement and H_o2: There is no effect of goal setting strategies as self-regulated learning strategies on grade XI students' academic achievement. Alternate hypotheses are stated as H_A: There is statistically significant effect of memory strategies as self-regulated learning strategies on grade XI students' academic achievement and H_A: There is statistically significant effect of goal setting strategies as self-regulated learning strategies on grade XI students' academic achievement.

Findings

Data analysis revealed that there is statistically significant effect of goal setting strategies as self-regulated learning strategies on grade XI students' academic achievement. It predicts that goal setting strategies improved students' academic achievement. Students' goal setting self-regulated learning strategy play significant role in enhancing their academic achievement.

Sampled data have further yielded that the memory strategies as self-regulated learning strategies have statistically significant effect on grade XI students' academic achievement. Students' academic achievement is predicted by the memory strategies. Students' adoption of memory strategies as their self-regulated learning strategies would improve their academic achievement.

Discussion

The self-regulated learning strategies selected for the study were goal setting and memory strategies. The findings of the study revealed that goal setting strategies of self-self-regulated learning strategies for grade XI students are effective for the enhancement of academic achievement. These findings are also consistent with (De Smul, et al., 2018). Thomas and Rose (2018) also recommended the use of goal setting strategies to improve academic achievement. Similar studies have found a strong relationship between self-regulated strategies and academic success within a wide range of grade levels and subject fields (Cho, Marjadi, Langendyk, & Hu, 2017; Mutweleli, 2014 & Yamada et al., 2017).

The present study revealed statistically significant effect of memory strategies on students' academic achievement. These findings are consistent with (Kizilcec, Perez-Sanagustin, & Maldonado, 2017) and (Cleary & Kitsantas, 2017). Panadero, (2017) has suggested the effective role of self-regulated strategies for the enhancement of academic achievement. Sun, Xie, and Anderman (2018) have recommended the use of self-regulated learning strategies to improve academic achievement. Self-regulated learning strategies are effective for the improvement of academic achievement. Students adopt different activities for leaning content of different subjects. Self-regulated learning strategies may have significant effect on students' academic achievement. Therefore, Cleary and Kitsantas (2017) and Thomas and Rose (2018) have the view that self-regulated learning strategies have significant effect on students' academic achievement.

Conclusion

Study results are concluded that goal setting strategies as self-regulated learning strategies are statistically significant predictor of students' academic achievement at grade XI level. The students adopted these self-regulated learning strategies had improved academic performance in their annual secondary school examinations.

It is further concluded that memory strategies as self-regulated learning strategies are predictor for secondary school students' academic achievement. These activities have statistically significant effect on secondary school students' academic achievement. Results show that memory strategies are effective for the enhancement of academic achievement at higher secondary school level.

Recommendations

Following are the recommendations of the study:

1. Grade XI students are recommended to use goal setting strategies during the study. These strategies would improve their academic achievement.
2. Grade XI students are recommended to experience memory strategies for learning their subjects to enhance their academic achievement.
3. Teachers teaching at grade XI level students are recommended to let their students experience goal setting strategies for their improved academic achievement.
4. Teachers teaching at grade XI level students are recommended to let their students experience memory strategies for their improved academic achievement.
5. Present research was quantitative, qualitative or mixed method research may be conducted for study in detail.
6. Other than goal setting and memory strategies are recommended to be researched to find out their effect on students' academic achievement and their character building.
7. Future researchers are also recommended to conduct qualitative study for in-depth findings.

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