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Interplay of Self-Regulation and Attitudes Toward Learning: Insights from Secondary School Students of Lahore

Dr. Muhammad Anwer (Corresponding author)
Associate Professor, Division of Education, University of Education, Lahore
Email: dranwer@ue.edu.pk

Samreen Siddique
MPhil Scholar (Educational Leadership and Policy Studies), University of Education Lahore, Email: samreensiddique255@gmail.com

Nisar Ahmad Khan
M.Phil Scholar (Educational Leadership and Policy Studies), University of Education, Lahore, Email: nisar15273@gmail.com

Iqra Mansoor
MPhil Scholar (Educational Leadership and Policy Studies), University of Education Lahore, Email: iqramansoor411@gmail.com

ABSTRACT

This study explored the interplay of self-regulation and learning attitudes among secondary school students in Lahore, Pakistan. The study adopted a quantitative, correlational research design. A stratified random sample technique was used to select 400 public secondary school students. The Self-Regulated Learning Scale (SRLS) and the Learning Attitude Scale (LAS) were two standardized instruments used to measure students' perspective. The data were analyzed using descriptive statistics, independent samples t-tests, and Pearson correlation coefficient. The findings showed that students had high scores for self-regulation, especially in goal setting and reflection, compared to emotional regulation, which had comparatively lower scores. The attitudes toward learning were predominantly positive, and students showed commitment to the importance of education and high standards of achievement, although moderate scores of learning anxiety were also demonstrated. Self-regulation and learning attitudes showed a strong, statistically significant, positive correlation ($r = .61$, $p < .001$), whereby students with higher regulatory abilities were more likely to have more positive learning dispositions. These results indicate the mutual influence of self-regulation and learning attitudes, as well as the necessity of educating in a way that combines self-regulation training and socio-emotional support.

Keywords: Self-Regulation, Attitudes Towards Learning, Secondary Education, Academic Motivation, Educational Psychology.

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Introduction

Learning at secondary schools is neither merely about learning; it is also about developing an attitude towards learning and the ability of the students to independently guide the learning process. At this point, self-regulation and learning attitude constructs emerged as critical factors in determining academic growth and participation. Self-regulated learning (SRL) is an active and constructive process in which learners formulate goals and oversee, regulate, and exercise control over their cognitive, motivational, emotional, and behavioural activities based on their goals and the learning context (Adler et al., 2025). Attitudes towards learning involve the emotional and cognitive orientation that students have toward activities to show interest, persistence, and motivational strength. Dispositions have a strong impact on the way students approach academic difficulties.

The model of SRL by Zimmerman involves three stages, i.e., forethought (planning and goal-setting), performance (strategy execution and monitoring), and self-reflection (evaluation and adjustment) (Heikkinen et al., 2025). Meanwhile, positive learning attitudes tend to concur with intrinsic motivation, engagement, and perseverance. These constructs combine to create a dynamic (two-way) relationship: SRL improves the ability of students to approach learning with initiative, and an optimistic attitude towards learning encourages students to use and develop self-regulatory behaviours.

The meta-analysis proved the existence of moderate ($r = 0.26$) SRL strategies-academic achievement correlation and provides evidence of their practical importance (Latipah, 2010). Similar studies involving blended and online learning conditions documented medium effect sizes ($ES = 0.69$) in SRL interventions to improve the outcomes of academic performance at different levels of education (Xu et al., 2023) This academic achievement has significant role in transformation of education (Jamil, Ain, et al., 2024). It is worth noting that the affective and cognitive dimensions of SRL and learning motivation are especially important for adolescents, which is why middle school is an essential time to develop them.

In addition, SRL is a set of cognitive-metacognitive (such as planning, monitoring, cognitive task execution, and reflective evaluation) and motivational (self-efficacy, goal orientation, and task value) elements (Caixia et al., 2025; Heikkinen et al., 2025). One of the primary inspirations is self-efficacy or the belief in one ’s ability to achieve something; it causes perseverance, effort, and willingness to take risks, and specific accuracy in self-efficacy enhances metacognitive regulation (Hartelt & Martens, 2024). The latest developments in the field of SRL have also focused on the role of emotions. A meta-analysis that combined trait- and task-level feelings noted the interaction between affect and SRL aspects and recommended the collection of data in a multimodal format to more effectively understand their interactions (Zheng et al., 2023). This affective dimension may be especially relevant in the context of secondary schools, where emotional disorders can be extremely relevant to academic tasks.

In addition, recent research that accesses trace-based data (such as recording patterns when students do their writing assignments) demonstrates that lower-achieving secondary students are predominantly dependent on simple orientation strategies while higher order thinking skills have been focused in literature (Jamil, Mehmood, et al.,

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2024). Meanwhile, the more successful performers are, the more they elaborate and reread, which is equal to having more control over their cognition (Cheng et al., 2025). The present study is timely and empirically relevant, that it is concerned with self-regulation and learning attitudes among secondary school students. However, the available literature on this age category is still incomplete, particularly the relationship between self-regulation and learning attitudes, how the former affects the latter, and vice versa. Most meta-analytical reviews have focused on academic performance rather than direct learning attitude or have been conducted in an online/blended environment that is not like traditional high school classrooms.

Objectives of the Study

To find out students' level of self-regulation at secondary level
To investigate students' attitude towards learning at secondary level
To find out the relationship between students' self-regulation and attitude towards learning at secondary level.

Literature Review

Self-regulated learning (SRL) refers to the description of learners as active, goal-oriented agents who plan, monitor, and assess their learning tasks cyclically, that is, consisting of forethought, performance, and self-reflection stages (Elmabaredy & Gencel, 2024; Moos & Ringdal, 2012). All SRL phases can be positively impacted by the environmental and social context, especially teacher prompts and feedback, in which learners are able to establish significant goals and make effective reflections (Moos & Ringdal, 2012). The described methods of formative assessment and self- and peer-assessment support metacognitive activity and motivation as students explore their own work in comparison with standards (Meusen-Beekman et al., 2015).

The strategies of SRL are not purely a concept in literature; recent research studies have reported their practical usefulness in secondary schools. A 2024 study of peer observation programs found that peer observation programs improved self-feedback, reflection, and control of learning strategies in secondary students who observed peers (Torres et al., 2024). In writing activities on a computer, better students showed thick interconnections between the processes of SRL regular cycles of reading, writing, and re-reading, and their metacognitive involvement was more profound than that of other students (Aksela et al., 2024). However, obstacles such as lack of access to the digital environment, technical problems, reluctance to change, and lack of instructor training may hinder the incorporation of SRL (Faza & Lestari, 2025). These studies highlight the flexibility of SRL in situations and how supportive environments foster the development of SRL in adolescents.

Although SRL has been extensively studied, few studies have directly analyzed the interaction between learning attitudes and SRL, that is, interest, motivation, and perseverance. Attitude is explained by the Theory of Planned Behaviour (TPB) in terms of wilful behaviour, subjective norms, and perceived power. When applied in the educational context, this suggests that supportive norms and positive learning attitudes can motivate SRL intentions. One study in blended learning settings showed that the intention to self-regulate learning was mediated by teacher support and student attitude

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towards SRL (Jiang et al., 2022). Motivation theories such as Self-Determination Theory (SDT) state that demonstrating the usefulness of a task, however uninteresting it might be originally, leads to increased interest, engagement, and persistence in the task. This supports the fact that affective attitudes and SRL reinforce each other.

The implementation of SRL in the classroom usually faces structural and pedagogical challenges. Six major barriers to science classrooms were identified: inadequate time, curriculum, teacher training, incompatible teacher beliefs, lack of resources, and student resistance (Del Mario & Tran, 2024). A 2025 study focused on the significance of teacher facilitation and the learning environment in general (the Learning Environment Niche, or LEN). By aiding learners to develop positive attitudes toward failure and exemplifying SRL, teachers can encourage their learners to engage in and diversify SRL strategies; however, when teachers have poor understanding of SRL, such attempts may be sabotaged (Matulaitienė et al., 2025).

There are increasing applications of digital tools in learning, with complicated consequences for SRL. SRL can be facilitated by technology-enhanced learning environments, such as web-based self-assessment and ICT tools, which increase self-efficacy and the adoption of monitoring strategies, particularly when perceived ease of use is high (Sui et al., 2023). Technology in collaboration with the design of education (e.g. tracking SRL through digital traces) can allow a fine-tuned view of how students control learning, which will allow them to know in which areas scaffolds are most necessary (Aksela et al., 2024; Faza & Lestari, 2025).

Research Methodology

The research design used in this study was a quantitative, correlational design to investigate relationship between the self-regulation of secondary school students and their learning attitude. The correlational design was considered suitable because it allows for the exploration of existing strengths and directions of relationships between variables without altering them (Creswell & Clark, 2017). The study population involved students at public secondary schools from Lahore, Punjab. The research was restricted to public schools due to resources and time constraints. A stratified random sampling technique was used to ensure diversity in terms of gender (male and female). This approach also allowed for meaningful comparisons between male and female respondents. A sample of 300 students was selected which was found to be sufficient to carry out correlational research and matched the scale of medium effect sizes with 95% confidence levels (Cohen, 1992).

Two standardized questionnaires were used for data collection. The Self-Regulated Learning Scale (SRLS) was first, or the ability of students to set, plan, self-monitor, control, and reflect. The second was the Learning Attitude Scale (LAS), which measures students' cognitive, effective, and behavioural orientation towards learning. Established scales are more effective in improving validity and reliability, where the constructs of interest are measured in the same way (Tavakol & Dennick, 2011). Both scales were pilot tested with a small sample (n =30) to ensure internal consistency in the local setting, with Cronbach's alpha values beyond the ideal acceptable level of 0.70, signifying good reliability. Paper-based questionnaires were used to gather data during school time with the prior consent of school administrations.

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The data gathered were analyzed using the Statistical Package of the Social Sciences (SPSS 26). To study the students' perceptions concerning their self-regulation and learning attitudes, descriptive statistics (means, standard deviations, frequencies) were calculated. Differences between sex and localities were compared using independent sample t-tests. Finally, the product-moment correlation coefficient was used to test correlations between self-regulation and learning attitudes.

Results

Table 1: Mean and Standard Deviation of Respondents on Self-Regulation and Attitude toward Learning by Gender

Scale	Respondents	N	Mean	SD
Self-Regulation	Overall	300	88.43	10.030
	Male	150	89.24	9.998
	Female	150	87.63	10.031
Attitude toward Learning	Overall	300	94.01	13.612
	Male	150	94.05	12.996
	Female	150	93.97	14.271

The above table results indicate that both male and female students reported relatively high levels of self-regulation and positive attitudes toward learning, with overall mean scores of 88.43 and 94.01, respectively. While male students scored slightly higher on both scales, the differences between genders were minimal, suggesting that self-regulation and attitudes toward learning are fairly consistent across male and female groups. These findings highlight that gender does not play a substantial role in shaping either construction among secondary school students.

Table 2: Comparison of Male and Female Secondary Students on Self-regulation and attitude toward learning

Variable	Gender	N	Mean	SD	df	t	p
Self-regulation	Male	150	89.24	9.998	298	1.395	.164
	Female	150	87.63	10.031			
Attitude toward Learning	Male	150	94.05	12.966	298	0.055	.956
	Female	150	93.97	14.271			

Based on gender, there were no significant differences in students' self-regulation and attitude toward learning. Although male students (M = 89.24, SD = 9.998) reported slightly higher mean scores than female students (M = 87.63, SD = 10.031), the difference was not significant (t = 1.395, p = .164). Likewise, male (M = 94.05, SD = 12.966) and female students (M = 93.97, SD = 14.271) had almost equal means and no significant differences (t = 0.055, p =.956). These results show that gender was not a significant factor that influenced the self-regulation of students or attitudes to learning, and there was a similar trend between the male and female groups.

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Table 3: Correlation between Self-Regulation and Attitude Toward Learning by Gender

Respondents	N	R	Sig.
Overall	300	.492	.000
Male	150	.610	.000
Female	150	.389	.000

The overall analysis revealed a significant positive correlation ($r = .492$, $p < .001$) between self-regulation and attitude toward learning, demonstrating that students with higher self-regulation tend to exhibit more favourable attitudes toward it. Disaggregating by gender, the strength of the relationship was weaker for males ($r = .610$) than for females ($r = .389$). This implies that although self-regulation is positively correlated with attitude towards learning in the two groups, the correlation between the two is stronger in male students than in female students.

Discussion

The current research also looked at self-regulation and attitude towards learning in secondary students of both genders, as well as the correlation between the two constructs. The results proved that male and female students have high self-regulation and positive attitudes towards learning. The two leveled in the mean scores and t-tests were conducted to test that there is no significant difference in the mean scores between the two genders. These results reveal that gender does not play a major role in influencing self-regulation or learning attitudes among the secondary students.

The findings of other past research affirm that there are no severe differences in gender in self-regulation. As an example, according to Panadero (2017) and Bembenutty (2023) self-regulation skills were not constructed as gendered but were facilitated by the educational practices and the contexts. Similarly, similar threshold of metacognitive and motivational control was observed in male and female students in Asian research studies conducted in Asian settings (Usher & Schunk, 2017). This means that the collectivist societies including Pakistan may afford more equal chances to their learners to exercise control over themselves regardless of their gender. The same case was evident in the findings of the attitude towards learning which also revealed no gender discrepancy among the teachers. The disposition of both male and female teachers was nearly equal thus suggesting that there was equality in the professional dispositions of the teachers in the student learning.

The other important finding made in this study was that the relationship that existed between self-regulation and attitude towards learning was established to be significant and positive. On the general level, the correlation was moderate to high ($r = .492$) which means that students that have a higher level of self-regulation have higher chances of having positive attitudes towards learning. This correlation proves the fact of dependence of abilities of students to regulate their learning processes and their motivation on academic activities. The same relationship has been drawn in the

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previous studies where self-regulation was identified as a strong predictor of engagement, persistence, and academic success (Dent & Koenka, 2016; Korpipää et al., 2020).

As indicated in the analysis, the relationship with male students was higher (r =.610) compared to female students (r =.389). It is indicated that self-regulation role is positively related to the attitudes to learning in both groups, but it may be stronger among male students. This can be attributed to the fact that male students unlike female students are more likely to rely on self-regulation practices to enhance positive attitude towards learning unlike female students who are seen to be more extrinsically driven in certain situations. Similarly, there might be broader social or affective concerns in the female students that would mediate the effect of self-regulation (Panadero, 2017; Zimmerman & Moylan, 2009).

These results have significant educational implications. They emphasize the necessity of developing self-regulation approaches for both genders, as they are always associated with positive academic attitudes. Self-regulation has been found to be reinforced through classroom tasks that involve goal-setting exercises, reflective practices, and scaffolding metacognitive strategies (Greene et al., 2018). In addition, teacher training programs should focus on the implementation of self-regulatory support in instructional practice to cultivate both the cognitive and affective aspects of learning in students as training plays a vital role in quality education and professional development (Abbas et al., 2021; Hussain et al., 2021; Pirzada et al., 2023).

Conclusion

This study offers evidence that secondary school students in Lahore are highly self-regulated, usually have a positive attitude towards learning, and that there is a high degree of positive relationship between the two. These results affirm the theoretical view that self-regulation and attitude toward learning are dependent and reinforcing. Although students seem to be able to set their goals and reflect, there are issues with sources such as emotional regulation and anxiety management. These implications indicate that educational practices and policies should be used to promote the cognitive and socio-emotional aspects of learning. By enabling the students to self-regulate and be positively disposed of education, educators can achieve success with young learners in a more complex world.

Recommendations

Direct teaching of self-regulation skills, including goal setting, monitoring, and reflection, should be incorporated through the daily routine in the classroom to facilitate the ability of students to learn independently.

Socio-emotional learning should be introduced into the curriculum in order to improve the emotional control of students, as well as to reduce their anxiety about studying.

Create mastery-focused classroom atmosphere that underlines the essence of learning and self-growth, and, therefore, enforces positive learning attitude.

The instructional personnel are professionally prepared, focusing on the development of formative evaluation and feedback patterns where self-regulation and motivational interest are scaffolded. The evaluation systems should be modified to include low-

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stakes and formative assessment in the high-stakes assessment to reduce the pressure but promote long-term motivation to learn.

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