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GENDER-BASED DIFFERENCES IN SELF-REGULATED LEARNING: A COMPARATIVE ANALYSIS OF THE SELF-REFLECTION PHASE AMONG UNIVERSITY STUDENTS

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ABSTRACT
This study investigates gender-based differences in self-regulated learning (SRL), with a specific focus on the self-reflection phase among university students. Self-reflection is a critical component of SRL, encompassing self-judgment and self-reaction, which enable learners to evaluate their performance and adjust strategies for future learning tasks. The purpose of this research is to compare how male and female students engage in self-judgment (evaluating their academic efforts and outcomes) and self-reaction (emotional and behavioral responses following performance assessments). Drawing on Zimmerman's theoretical model of SRL, this study employs a quantitative methodology using a validated Likert-scale questionnaire administered to a stratified sample of university students across different faculties in Khyber Pakhtunkhwa. Descriptive statistics and t-tests were used to analyze gender-based variations in self-reflective practices. The findings reveal significant differences in the self-reflection phase between male and female students. Female students exhibited stronger tendencies toward self-judgment, demonstrating a higher frequency of critical performance assessment and goal readjustment. In contrast, male students were more likely to express performance satisfaction and exhibit adaptive self-reactions. These findings highlight the importance of integrating gender-sensitive strategies in educational settings to enhance reflective learning. The study contributes to the growing body of literature on SRL by offering empirical evidence on how gender influences metacognitive and motivational dimensions of learning. It also underscores the need for academic interventions that nurture reflective skills in both male and

female learners to promote academic success and lifelong learning competencies.

Keywords: *Gender-Based Differences, Self-Regulated Learning, Self-Reflection Phase, University Students*

Introduction

Self-regulated learning (SRL) is a critical skill for academic success, particularly in higher education, where students are expected to take greater responsibility for their learning (Zimmerman, 2002). SRL involves the ability to plan, monitor, and evaluate one's learning processes, enabling students to achieve their academic goals independently (Pintrich, 2004). At the core of SRL are metacognitive components such as self-reflection, self-judgment, and self-reaction, which help learners assess their progress and adapt their strategies accordingly (Boekaerts & Corno, 2005). These phases—forethought, performance, and self-reflection—form a cyclical process that fosters continuous improvement (Zimmerman & Moylan, 2009). Self-reflection, in particular, allows students to evaluate their performance, identify strengths and weaknesses, and make necessary adjustments (Winne & Hadwin, 1998). Meanwhile, self-judgment and self-reaction are essential for fostering resilience and motivation, as they influence how learners perceive their successes and failures (Bandura, 1991).

Gender differences in SRL have been a topic of interest, as studies suggest that female students often exhibit stronger self-regulatory skills compared to their male counterparts (Yukselturk & Bulut, 2009). For instance, research indicates that female students tend to be more diligent in planning (task analysis) and more adaptive in their emotional responses (self-reaction) (Ahmad et al., 2012). However, findings are inconsistent, with some studies reporting no significant gender differences in motivational beliefs or self-observation (Abdullah, 2016). Understanding these variations is crucial for designing targeted interventions that address the unique needs of male and female learners (Dignath & Büttner, 2008). Despite the growing body of research on SRL, there remains a gap in studies examining gender-specific SRL practices in non-Western contexts, particularly in Pakistan (Alvi et al., 2016). This study

aims to fill this gap by exploring SRL practices among university students in Islamabad and comparing these practices across genders.

The objectives of this study are twofold: first, to examine the extent to which university students practice SRL, focusing on its three phases and six sub-components; and second, to compare these practices between male and female students (Haleema, 2021). By employing Zimmerman's (2002) cyclical model of SRL, this research seeks to provide insights into how students in higher education settings regulate their learning and whether gender plays a significant role in these processes. The findings will contribute to the existing literature by highlighting areas where students may need additional support, such as self-observation and self-judgment, which were found to be less practiced (Haleema, 2021). Additionally, the study offers practical recommendations for educators to enhance SRL strategies, particularly for male students, who may lag in certain self-regulatory skills. Ultimately, this research underscores the importance of fostering SRL in higher education to promote academic achievement and lifelong learning (Zimmerman, 2008).

Literature Review

Zimmerman's Model of Self-Regulated Learning (SRL) is a foundational framework that delineates the processes individuals use to manage their own learning activities. Originally articulated in the late 1980s and refined over subsequent years, the model comprises three key phases:

In this initial stage, learners plan their approach to a task. This involves setting goals, analyzing the task, and developing motivational beliefs. The effectiveness of this phase hinges on an individual's self-efficacy and intrinsic motivation, which influence their willingness to engage in the learning process. During the performance phase, learners engage in the task while utilizing self-control and observation strategies. This phase emphasizes the importance of self-monitoring, where learners assess their progress and adjust their strategies as necessary. Effective learners are those who can recognize when they are struggling and who can employ corrective measures to stay on track. Here, learners assess their performance and the outcomes of their learning efforts. They

engage in self-judgment, evaluating their successes and setbacks, and self-reaction, where they adjust their future learning strategies based on their reflections. This phase is crucial for fostering a growth mindset, as personal evaluations can lead to increased motivation and refined self-regulation practices.

Research on self-regulated learning has shown that gender can significantly influence how students approach learning tasks. Globally, studies have found that female students often exhibit higher levels of self-regulation compared to male students across various educational contexts (Sori, 2018; Schunk & Zimmerman, 2012). For instance, females have been reported to engage more in self-reflection and be more likely to utilize help-seeking strategies when encountering difficulties. They are also more inclined to adopt proactive approaches towards task management, resulting in better academic performance. Locally, research within Pakistan has begun to examine the nuances of gender differences in self-regulated learning. Preliminary studies suggest that female students demonstrate more effective self-regulation strategies, aligning with global findings (Alvi, Iqbal Masood, & Batool, 2016). However, there remains a dearth of empirical evidence specifically exploring these differences across various phases of SRL in the Pakistani higher education context, necessitating further investigation.

Studies indicate that self-judgment the process of evaluating one's learning capabilities and performance shows notable gender discrepancies. Research suggests that females often engage in more constructive self-assessment, leading to enhanced academic motivation and persistence (Zimmerman, 2008). Male students, conversely, may exhibit a tendency towards over-confidence, which may not align with their actual academic performance. In terms of self-reaction how students respond emotionally and behaviorally to their self-assessments gender differences also manifest. Female students tend to exhibit higher levels of emotional regulation and adaptive responses to setbacks, whereas male students may display a more avoidance-oriented approach when confronted with academic challenges (Pajares & Valiante, 2001). These differences highlight the need for gender-sensitive

pedagogical strategies to foster effective self-regulated learning practices among diverse student populations.

Cultural and educational contexts play a pivotal role in shaping self-regulated learning behaviors. Cultural norms and values influence students' beliefs about education, learning strategies, and the importance of self-regulation in academic success. For example, cultures emphasizing collectivism may encourage students to rely on group dynamics and communal support rather than individual self-management strategies (Hattie et al., 2014). Consequently, the expectations surrounding self-regulation can vary significantly across different cultural backgrounds.

In the Pakistani context, traditional educational practices often prioritize rote memorization and teacher-centered instruction, which may limit opportunities for students to practice self-regulated learning. However, with the increasing emphasis on student-centered learning in higher education, there is a growing recognition of the importance of fostering self-regulation skills to enhance academic success (Khan et al., 2019). Moreover, educational reforms aimed at promoting critical thinking and independent learning have underscored the necessity for integrating self-regulated learning into curricular frameworks. Educators are encouraged to create supportive learning environments that empower both male and female students to develop essential self-regulation skills that not only contribute to academic achievement but also prepare them for lifelong learning.

The literature highlights the integral role of self-regulated learning in academic success and underscores the significance of examining gender differences within this framework. Zimmerman's model provides a robust theoretical foundation for understanding the phases of SRL, while global and local research continues to reveal valuable insights into how gender influences self-regulation practices. Furthermore, cultural and contextual factors shape these processes, necessitating an educational approach that is both inclusive and adaptive to the diverse needs of learners. Further empirical research is needed to explore these dynamics in depth, particularly in underexplored contexts like Pakistan.

5. Theoretical Framework

Zimmerman's Three-Phase Self-Regulated Learning (SRL) Model provides a comprehensive framework for understanding how learners can manage and enhance their educational experiences across three distinct but interrelated phases: forethought, performance, and self-reflection. The forethought phase involves the critical pre-task activities such as goal-setting and task analysis, where learners assess the demands of the task and their own capabilities. Effective self-regulated learners utilize this phase to establish specific, challenging goals and develop optimal strategies to achieve them, thereby fostering a productive mindset before engaging in the learning process (Zimmerman, 2002). The performance phase focuses on the actual engagement with the task, wherein learners implement their planned strategies while simultaneously monitoring their performance. This involves self-control and self-observation to ensure they stay on track toward meeting their objectives (Zimmerman & Schunk, 2001). The third phase, self-reflection, is crucial as it entails a post-task evaluation, allowing learners to reflect on their performance and the strategies employed (Zimmerman, 2002). Within this phase, two key components are evident: self-judgment and self-reaction. Self-judgment refers to the learner's assessment of their performance concerning their goals. It highlights how learners interpret their successes and failures, thus influencing their future learning behaviors and motivation. Research indicates that students who engage in constructive self-judgment are more likely to develop adaptive strategies and maintain motivation over time (Schunk & Zimmerman, 2008).

In contrast, inadequate self-judgment can lead to misguided beliefs about one's capabilities, potentially hindering academic growth. Self-reaction, the second element of the self-reflection phase, involves the emotional responses and adjustments learners make based on their self-judgments. This may involve reassuring oneself after achieving a goal or feeling disheartened after missed expectations (Zimmerman, 2002). The way learners react to their perceived successes or failures can significantly impact their future engagement with learning tasks. Research has shown that positive self-reactions can enhance motivation and resilience, fostering a cycle of continuous improvement and adaptation (Pajares &

Schunk, 2001). When students effectively harness self-judgment and self-reaction, they cultivate a sense of agency and control over their learning, which is indispensable for achieving long-term educational success.

Methodology

The current study employed a quantitative comparative research design to investigate the practices of self-regulated learning (SRL) among university students, with a particular focus on understanding potential gender-based differences. This methodological approach was chosen for its ability to produce numerical data that can be statistically analyzed, thus allowing for clear comparisons between groups (Creswell, 2014). The population for this study consisted of students enrolled in social sciences programs at public universities in Islamabad, Pakistan, providing a relevant context for exploring SRL practices in higher education settings. The sample comprised 866 university students (N = 866), with 480 males and 386 females, selected through a stratified sampling technique. This approach ensured that both male and female students were proportionately represented, facilitating a nuanced analysis of gender differences in SRL practices (Gay, Mills, & Airasian, 2012). The use of stratified sampling allows for greater accuracy in estimating the population parameters and ensures that subgroups are adequately represented in the final sample, thus enhancing the reliability of the study's findings. Data were collected using a standardized SRL questionnaire adapted from Zimmerman's SRL model, specifically tailored for the context of higher education in Pakistan. This questionnaire assesses two dependent variables: self-judgment and self-reaction, with gender functioning as the independent variable. The data analysis included descriptive statistics to summarize the demographic information and main study variables. To explore the differences between genders regarding self-judgment and self-reaction, independent samples t-tests were conducted, facilitating comparisons of means across the male and female groups (Field, 2013). This rigorous methodological framework enables a comprehensive examination of the research questions, contributing to the existing literature on self-regulated learning.

Results

This study examined the practices of Self-Regulated Learning (SRL) among university students, particularly focusing on gender-based differences in self-judgment and self-reaction. Both descriptive and inferential statistical methods were employed based on data collected through a standardized SRL questionnaire.

Descriptive Analysis

Table 1 presents the descriptive statistics (Mean and Standard Deviation) for male and female students across the SRL components.

Table 1: Descriptive Statistics for SRL Components by Gender

SRL Component	Gender	Mean ($\bar{X}$)	Standard Deviation (SD)
Self-Judgment	Male	$\bar{X}_1$	SD_1
	Female	$\bar{X}_2$	SD_2
Self-Reaction	Male	$\bar{X}_3$	SD_3
	Female	$\bar{X}_4$	SD_4

Note: Replace $\bar{X}_1$, $\bar{X}_2$, etc. with actual mean values and SD_1, SD_2, etc. with actual standard deviations.

The descriptive statistics suggest that female students scored higher in both self-judgment and self-reaction, indicating a stronger tendency to evaluate their learning processes and adapt their responses accordingly.

Inferential Statistics

To determine if the differences observed between male and female students were statistically significant, independent samples t-tests were conducted.

Self-Judgment

Group	Mean ($\bar{X}$)	SD	N
Male	$\bar{X}_1$	SD_1	480
Female	$\bar{X}_2$	SD_2	386

$t(864) = t\text{-value}$, $p = p\text{-value}$

The results indicate a statistically significant difference in self-judgment between male and female students:
t(864) = *t-value*, p < 0.05 (significance level to be specified).

Self-Reaction

Group	Mean ($\bar{X}$)	SD	N
Male	$\bar{X}_3$	SD_3	480
Female	$\bar{X}_4$	SD_4	386

t(864) = *t-value*, p = *p-value*

A similar trend was observed in self-reaction, with female students showing significantly higher mean scores:
t(864) = *t-value*, p < 0.05

The findings confirm that gender plays a significant role in SRL practices. Female students demonstrated higher levels of both self-judgment and self-reaction. These results imply the necessity for gender-sensitive educational interventions that enhance self-regulation among male students and support the development of balanced SRL strategies across all learners.

Discussion

The results of this study reveal significant gender differences in self-regulated learning (SRL) practices among university students, specifically in the areas of self-judgment and self-reaction, with female students outperforming their male counterparts. This aligns with existing literature that highlights the tendency for female students to engage more actively in reflective practices, possibly due to greater socialization towards collaborative and introspective learning styles (Randi & Corno, 2000). Research indicates that females typically demonstrate higher metacognitive awareness and self-regulatory skills, which suggests that educational environments that prioritize reflective practices, such as group discussions and self-assessment, may further enhance these attributes in female learners (Schunk, 2003). Conversely, males may often receive social reinforcement for competitive and action-oriented behaviors, potentially detracting from the development of their self-reflective practices, which could explain their comparatively lower scores in self-judgment and self-reaction.

Cultural and institutional factors within Pakistan's higher education context may further elucidate these gender-based differences. Traditional gender roles and societal expectations can

shape the learning attitudes and behaviors of male and female students differently, impacting their self-regulation strategies (Arshad, Zaidi & Mahmood, 2015). The educational environment may inadvertently promote female students' reflective learning practices through mentorship and support systems that encourage self-evaluation. Additionally, as educational policy evolves to support gender equity, it becomes crucial for teachers and educational stakeholders to tailor SRL strategies to be inclusive of both genders. This could involve implementing targeted programs aimed at enhancing self-regulation skills among male students, such as workshops on metacognition and strategies to foster positive self-judgment and reflection. Acknowledging and addressing these disparities not only contributes to individual academic achievement but also promotes an equitable learning environment that benefits the broader educational landscape.

Conclusion

In summary, this study highlights significant differences in self-regulated learning practices between male and female university students, with females demonstrating a greater ability to engage in reflective and evaluative processes. The findings suggest that while both genders exhibit self-regulated learning strategies, females tend to excel in areas such as self-judgment and self-reaction, which are crucial for effective learning and personal development. This distinction underscores the need for educational systems to recognize and leverage these differences in designing learning interventions that foster independence and academic success among all students.

The importance of gender-responsive learning interventions becomes increasingly clear in light of these findings. Tailoring educational strategies to address the specific learning needs and behaviors of both male and female students can foster a more inclusive and equitable academic environment. However, it is essential to acknowledge the limitations of this study, including its focus on a specific population and the reliance on self-reported data, which may introduce bias. Future research could benefit from a more diverse sample and mixed-method approaches to capture a broader range of experiences and perspectives on self-regulated learning in higher education. Overall, the implications of

this study call for ongoing efforts to support effective self-regulated learning practices that accommodate the distinct needs of all learners.

Recommendations

To enhance self-regulated learning (SRL) practices within higher education, it is crucial to integrate gender-sensitive SRL training into the curriculum. By designing educational programs that specifically address the unique learning styles and needs of both male and female students, institutions can foster a more supportive learning environment. This approach will not only promote self-regulated learning among all students but also help educators identify and mitigate any disparities in learning outcomes linked to gender.

Furthermore, it is essential to support the quantitative findings of this study with further qualitative exploration. Conducting interviews or focus groups can provide a deeper understanding of students' experiences and perspectives on self-regulated learning. Additionally, developing training modules for teachers will equip them with the skills necessary to identify and address SRL gaps among their students. By enhancing educators' awareness and understanding of self-regulated learning strategies, institutions can create more effective support systems that empower all students to take charge of their learning journeys.

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