

COGNITIVE ABILITIES AND SELF-REGULATED LEARNING AMONG UNDERGRADUATE STUDENTS: A COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE UNIVERSITIES IN LAHORE, PAKISTAN

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Abstract

Cognitive abilities play a crucial role in students' learning by indulging their capacities to gain, ensue and apply knowledge commendably. Self-regulated Learning (SRL) embraces to plan, monitor, and evaluate their own learning for academic success in higher education. Regardless of the rising emphasis on preparing self-regulated learners, a few researches examined the relationship between cognitive abilities and self-regulated learning in Pakistan, particularly in different academic disciplines and institutional premises. Therefore, this study purposes to investigate the relationship between students' cognitive abilities and self-regulated learning among undergraduate students enrolled in the Departments of Education, Psychology, and English at the University of the Punjab (PU) and the University of Management and Technology (UMT), Lahore. A quantitative correlational research is employed. The sample of the study consisted of 600 students from the three departments (Education, English and Psychology) by employing purposive sampling technique. Descriptive statistics, Pearson product-moment correlation, independent-samples t-tests, one-way ANOVA, and multiple regression analysis is done by using SPSS to examine the relationship between the variables and differences across universities and academic disciplines. The findings of the study provided empirical evidence that cognitive abilities foster self-regulated learning among university students. The study may also assist educators, curriculum developers, and policymakers in designing instructional strategies and interventions that enhance students' independent learning, academic engagement, and overall educational outcomes in higher education institutions.

Keywords: Self-regulated Learning, cognitive Abilities, higher education, instructional strategy.

Introduction

The 21st century has turned higher education into a knowledge-driven environment where students are expected to learn how to be active, independent and lifelong learners in the society. Universities are no longer be seen as to transmit knowledge only, rather to produce such graduates who possess critical thinking, problem-solving, adaptability and self-directed learning skills. With the increasing progress of digital technologies, blended learning environment and artificial intelligence, these expectations are become more prominent and practical. Cognitive abilities are the fundamental abilities that foster logical reasoning, problem-solving skill, planning skill, memorizing, comprehending the difficult concepts and ideas, and experience the new situation. These abilities are directly related to one's mental capacity to do something simple or difficult in any happening (Borella, Carretti&Pelgrina, 2010).

Research in cognitive psychology suggests that cognitive abilities are not limited to intelligence alone but encompass a broad range of executive functions that regulate goal-directed behavior. Executive functions such as working memory, inhibitory control, and cognitive flexibility enable learners to sustain attention, resist distractions, shift between tasks, and evaluate alternative solutions. These functions are particularly important in higher education, where students are expected to analyze complex information independently rather than rely solely on teacher guidance. Recent systematic evidence further indicates that executive functions are closely intertwined with self-regulated learning, highlighting the importance of understanding how cognitive resources support learners' ability to manage their own learning processes. (Evans, Floyd, McGrew & Leforgee, 2002; Floyd, Evans & McGrew, 2003; Floyd, McGrew & Evans, 2008; Zelazo & Muller, 2010).

Parallel to developments in cognitive psychology, the concept of self-regulated learning (SRL) has become one of the most influential frameworks for explaining successful learning

in higher education. Zimmerman (2000) conceptualized SRL as an active process in which learners set goals, employ appropriate learning strategies, monitor their progress, regulate motivation, and evaluate learning outcomes. Rather than viewing learning as a passive activity, the self-regulated learning perspective emphasizes that successful students deliberately control their cognition, behavior, motivation, and learning environment to achieve academic objectives. This perspective has gained widespread acceptance because it explains why students with similar intellectual abilities often demonstrate different levels of academic achievement and persistence (Seufert, Hamm, Vogt & Riemer, 2024)

Recent educational research has reinforced the growing importance of self-regulated learning in higher education. Systematic reviews have consistently demonstrated that interventions designed to improve self-regulated learning strategies enhance students' academic engagement, persistence, and learning outcomes across face-to-face, online, and blended learning environments. Moreover, researchers emphasize that self-regulated learning should be considered a core graduate attribute because it enables learners to adapt successfully to rapidly changing educational and professional contexts. The increasing integration of technology into higher education has further strengthened the need for students to become autonomous learners capable of planning, monitoring, and evaluating their own learning experiences (Paris & Newman, 1990).

Although cognitive abilities and self-regulated learning are distinct psychological constructs, theoretical and empirical literature suggests that they are closely related. Students with stronger cognitive abilities are generally better equipped to process information efficiently, identify effective learning strategies, monitor comprehension, and solve academic problems. These cognitive processes support the regulatory behaviors that characterize self-regulated learners. Conversely, students who possess effective self-regulation skills are more likely to utilize their cognitive resources strategically by selecting appropriate learning methods, managing cognitive load, and allocating attention to relevant academic tasks. Consequently, the relationship between cognitive abilities and self-regulated learning appears to be reciprocal, with each construct supporting the development of the other.

The relationship between these constructs can be explained through several influential educational theories. Information Processing Theory proposes that learning depends on the efficient processing of information through attention, working memory, encoding, storage, and retrieval processes. Students with stronger cognitive processing abilities can organize and integrate information more effectively, thereby facilitating higher-order thinking and learning. Social Cognitive Theory further explains that learning results from the dynamic interaction of personal, behavioral, and environmental factors. Within this framework, self-regulation functions as a mechanism through which learners intentionally control their thoughts, behaviors, and motivation to achieve desired outcomes. Zimmerman's cyclical model of self-regulated learning extends this perspective by describing learning as a continuous process involving forethought, performance, and self-reflection, all of which rely heavily on cognitive functioning (Paris & Paris, 2001).

Pakistan's higher education sector has experienced considerable expansion during the past two decades, accompanied by increased emphasis on quality assurance, student-centered instruction, and outcome-based education. Public and private universities operate under different organizational structures and often provide distinct learning environments that may shape students' opportunities to develop cognitive and self-regulatory competencies. Similarly, students enrolled in Education, Psychology, and English programs encounter different curricular requirements, instructional approaches, and assessment practices, which may influence both their cognitive abilities and their capacity for self-regulated learning.

Investigating these variations is therefore important for understanding how institutional and disciplinary contexts contribute to undergraduate learning.

Khan, Shah and Sahibzada (2020) examined the impact of self-regulated learning on bachelor program university students' academic achievement in Khyber Pakhtunkhwa. The study findings revealed positive contributions of self-regulated learning behavior on their academic achievement by the evidence of 480(240 male, 240 female) university students. Likewise a qualitative study conducted to explore the existence of self-regulation of learning in secondary school science male students of Pakistan. The data were collected from twenty-four students by employing focus group discussions. It was revealed by the study that instead of self-regulation, external regulation of learning were presence, in which three common factors; gender, teaching methods, and field of study were highlighted (Abu Bakar, & Ali, 2017).

In another quantitative study (Aziz, Qureshi & Khanam, 2017), the influence of diversity in gender and socioeconomic status was examined on self-regulated learning of university students of Lahore. The data were collected from MS students of four universities of Lahore. a set of 4-scale of LASSI was used. It was found by the study that instead of gender, socioeconomic status influenced self-regulated learning practices of the students.

Conceptual Framework of the Study

The present study examines the relationship between cognitive abilities and self-regulated learning among undergraduate students enrolled in the Departments of Education, Psychology, and English at the University of the Punjab and the University of Management and Technology in Lahore, Pakistan. By comparing students from a public and a private university, the study seeks to provide empirical evidence regarding the extent to which cognitive abilities are associated with self-regulated learning and whether differences exist across institutional and disciplinary contexts. The findings are expected to contribute to educational psychology by expanding current knowledge of learner characteristics in Pakistani higher education while providing practical implications for teachers, curriculum developers, university administrators, and policymakers seeking to promote independent, lifelong learning among undergraduate students (Luo & Zhou, 2024). The sound relationship of self-regulated learning and cognitive is shown in the following figure;

Relationship of Self-regulated Learning (SRL) and Cognitive Abilities (CA)

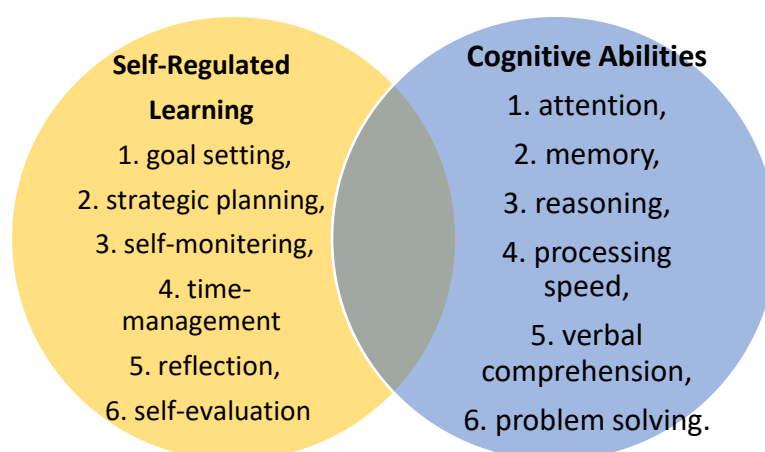


Figure 1: *Conceptual Framework of the Study* (Source: Researcher)

Objectives of the Study

Following were the research objectives of the study;

1. Examines the relationship between university students' cognitive abilities and Self-regulated Learning.
2. Find-outs the gender-wise significant difference in the university students' cognitive abilities and Self-regulated Learning.
3. Identify interdepartmental differences among university students' cognitive abilities and Self-regulated Learning.
4. Discover university-wise differences among university students' cognitive abilities and Self-regulated Learning.

Hypothesis of the Study

- H₀₁ There is no significant relationship between university students' cognitive abilities and Self-regulated Learning.
- H₀₂ There is no statistically gender-wise significant difference between university students' cognitive abilities and Self-regulated Learning.
- H₀₃ There is no statistically inter-departmental significant difference between university students' cognitive abilities and Self-regulated Learning.
- H₀₄ There is no statistically university-wise significant difference between university students' cognitive abilities and Self-regulated Learning.

Research Methodology

The present study, under the umbrella of positivism paradigm, using quantitative correlational research, find outs the relationship between cognitive abilities and self-regulated abilities among undergraduates students of the following universities. Following table exhibits the sample of the study.

Table 1

Sample of the Study

Institute Name	Departments	Sample Size
University of the Punjab, Lahore	Public University	
	Department of English	100
	Department of Education	100
	Department of Psychology	100
University of Management and Technology	Private University	
	Department of English	100
	Department of Education	100
	Department of Psychology	100
Grand Total		600

Tests were divided into two types, 1) Demographic information of the respondents; 2) Multiple Choice Questions (MCQs). Test contained forty Multiple Choice Questions (MCQs). The provided time was thirty minutes. Each test was developed according to the table of specification. The second type of the test related to Bloom taxonomy of cognitive ability and students provide the feedback about learning and academic performance in the classroom. For measuring self-regulated learning (SRL), a 5 point Lickert scale standardized questionnaire for Self-regulating Learning (SRQ) made by Millar and Brawn (1990) was employed. (see Appendix)

Table 2

Constructs of Test Development Weightage

Sr. No.	Constructs	No. of Items
	MCQs Part of Test	
1	Remember	10

2	Understanding	10
3	Reasoning	10
4	Problem-solving	10
Total		40

. The self-developed instruments were validated through five experts relevant to the field of the study whereas for the reliability purpose, pilot-study was conducted on other than sampled universities. Cronbach Alpha and item-analysis test was applied and the measurement was at 0.76. Appropriate statistical techniques were used for analysis of quantitative data, Pearson correlation, Independent sample t-test, and one way and two ways ANOVA was used to analyze the data.

Self-Regulated Learning Questionnaire

The questionnaire is divided into two parts (a) Demographic Information (b) Responses of Items

(a) Demographic Information

Name: _____ Department: _____

Gender: _____ Program: _____

University: _____

(b) SRQ

Please answer the following questions by circling the response that best describes how you are.

If you STRONGLY DISAGREE with a statement, circle. If you DISAGREE circle. If you are UNCERTAIN or UNSURE circle. If you AGREE circle, and if you STRONGLY AGREE circle. There are no right or wrong answers. Work quickly and don't think too long about your answers.

	Strongly Disagree Disagree	Uncertain Or Unsure	Agree	Strongly Agree
1. I usually keep track of my progress toward my goals.	1 2	3	4	5
2. My behavior is not that different from other people's.	1 2	3	4	5
3. Others tell me that I keep on with things too long.	1 2	3	4	5
4. I doubt I could change even if I wanted to.	1 2	3	4	5
5. I have trouble making up my mind about things.	1 2	3	4	5
6. I get easily distracted from my plans.	1 2	3	4	5

7. I reward myself for progress toward my goals.	1	2	3	4	5
8. I don't notice the effects of my actions until it's too late.	1	2	3	4	5
9. My behavior is similar to that of my friends.	1	2	3	4	5
10. It's hard for me to see anything helpful about changing my ways.	1	2	3	4	5
11. I am able to accomplish goals I set for myself.	1	2	3	4	5
12. I put off making decisions.	1	2	3	4	5
13. I have so many plans that it's hard for me to focus on any one of them.	1	2	3	4	5
14. I change the way I do things when I see a problem with how things are going.	1	2	3	4	5
15. It's hard for me to notice when I've "had enough" (alcohol, food, sweets).	1	2	3	4	5
16. I think a lot about what other people think of me.	1	2	3	4	5
17. I am willing to consider other ways of doing things.	1	2	3	4	5
18. If I wanted to change, I am confident that I could do it.	1	2	3	4	5
19. When it comes to deciding about a change, I feel overwhelmed by the choices.	1	2	3	4	5
20. I have trouble following through with things once I've made up my mind to do something.	1	2	3	4	5
	Strongly Disagree		Uncertain Or Unsure	Agree	Strongly Agree
	Strongly Disagree		Uncertain Or Unsure	Agree	Strongly Agree
21. I don't seem to learn from my mistakes.	1	2	3	4	5
22. I'm usually careful not to overdo it when working, eating, drinking.	1	2	3	4	5
23. I tend to compare myself with other people.	1	2	3	4	5
24. I enjoy a routine, and like things to stay the same.	1	2	3	4	5
25. I have sought out advice or	1	2	3	4	5

information about changing.					
26. I can come up with lots of ways to change, but it's hard for me to decide which one to use.	1	2	3	4	5
27. I can stick to a plan that's working well.	1	2	3	4	5
28. I usually only have to make a mistake one time in order to learn from it.	1	2	3	4	5
29. I don't learn well from punishment.	1	2	3	4	5
30. I have personal standards, and try to live up to them.	1	2	3	4	5
31. I am set in my ways.	1	2	3	4	5
32. As soon as I see a problem or challenge, I start looking for possible solutions.	1	2	3	4	5
33. I have a hard time setting goals for myself.	1	2	3	4	5
34. I have a lot of willpower.	1	2	3	4	5
35. When I'm trying to change something, I pay a lot of attention to how I'm doing.	1	2	3	4	5
36. I usually judge what I'm doing by the consequences of my actions.	1	2	3	4	5
37. I don't care if I'm different from most people.	1	2	3	4	5
38. As soon as I see things aren't going right I want to do something about it.	1	2	3	4	5
39. There is usually more than one way to accomplish something.	1	2	3	4	5
40. I have trouble making plans to help me reach my goals.	1	2	3	4	5
41. I am able to resist temptation.	1	2	3	4	5
42. I set goals for myself and keep track of my progress.	1	2	3	4	5
43. Most of the time I don't pay attention to what I'm doing.	1	2	3	4	5
44. I try to be like people around me.	1	2	3	4	5
	Strongly Disagree		Uncertain Or Unsure	Agree	Strongly Agree
			Strongly Uncertain		Disagree
			Agree		

			Strongly Disagree Unsure		Or Agree
45. I tend to keep doing the same thing, even when it doesn't work.	1	2	3	4	5
46. I can usually find several different possibilities when I want to change something.	1	2	3	4	5
47. Once I have a goal, I can usually plan how to reach it.	1	2	3	4	5
48. I have rules that I stick by no matter what.	1	2	3	4	5
49. If I make a resolution to change something, I pay a lot of attention to how I'm doing.	1	2	3	4	5
50. Often I don't notice what I'm doing until someone calls it to my attention.	1	2	3	4	5
51. I think a lot about how I'm doing.	1	2	3	4	5
52. Usually I see the need to change before others do.	1	2	3	4	5
53. I'm good at finding different ways to get what I want.	1	2	3	4	5
54. I usually think before I act.	1	2	3	4	5
55. Little problems or distractions throw me off course.	1	2	3	4	5
56. I feel bad when I don't meet my goals.	1	2	3	4	5
57. I learn from my mistakes.	1	2	3	4	5
58. I know how I want to be.	1	2	3	4	5
59. It bothers me when things aren't the way I want them.	1	2	3	4	5
60. I call in others for help when I need it.	1	2	3	4	5
61. Before making a decision, I consider what is likely to happen if I do one thing or another.	1	2	3	4	5
62. I give up quickly.	1	2	3	4	5
63. I usually decide to change and hope for the best.	1	2	3	4	5

Data Analysis

H₀₁. There is no significant relationship between students' cognitive abilities and Self-regulating Learning among undergraduate students of PU and UMT.

Table 3

Measurement of Relationship between Cognitive Abilities and Self-regulating Learning

<i>Variables</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>'r'</i>	<i>Sig.</i>
Cognitive Abilities	600	15.63	6.528	.035	.542
Self-regulating Learning	600	3.28	.366		

The table shows that Pearson product moment correlation was used to measure the relationship between cognitive abilities and Self-regulating Learning of the undergraduate students of PU and UMT. It was found that there was a significant positive relationship between both of the universities (i.e., PU & UMT) at the value of $p=0.542$ ($p<0.005$) and Person $r=.035$

Hence, it was reported that the null hypothesis was rejected. The results calculated that a positive relationship exist between SRL and CA for determining the academic performance of the students.

H₀₂. There is no statistically gender-wise significant differences between students cognitive abilities.

Table 4

Description of Gender-Wise Difference between Cognitive Abilities

<i>Gender</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>df</i>	<i>t-value</i>	<i>P</i>
Male	214	96.97	13.409	298	-3.457	.001
Female	386	102.95	15.189			

An independent-samples *t*-test was conducted to examine the difference in cognitive abilities between male and female undergraduate students. The findings revealed a statistically significant difference in cognitive ability scores between male and female students, $t(298) = -3.457$, $p = .001$. Female students ($M = 102.95$, $SD = 15.19$) obtained significantly higher cognitive ability scores than male students ($M = 96.97$, $SD = 13.41$). Therefore, the null hypothesis of no gender difference was rejected, indicating that female undergraduate students demonstrated higher cognitive abilities than their male counterparts in the present sample.

H_{02.1} There is no statistically gender-wise significant differences between the Self-regulated Learning (SRL) of students.

Table 5

Gender -wise description of difference between male and female students about SRL

<i>Gender</i>	<i>n</i>	<i>Mean</i>	<i>SD</i>	<i>df</i>	<i>t-value</i>	<i>p</i>
Male	214	0.35	.499	298	1.117	.0165
Female	386	0.64	.445			

Independent sample *t*-test was applied to measure the difference between male and female students about cumulative grade point average. There was statistically significance difference between male and female students' responses about Self-regulated Learning. The mean score of male responses ($M=0.35$, $SD=.499$) and mean of female responses (Female= 0.64 , $SD=.445$); $t(298) = -1.117$ at $p=0.01$. It was found that female responses for SRL are significantly positive than male responses.

H₀₃ There is no Inter-departmental significant difference between undergraduate students of PU and UMT regarding their cognitive abilities.

Table 6

Inter-Departmental difference between PU and UMT regarding their Cognitive Abilities

<i>Departments</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>df1</i>	<i>df2</i>	<i>F</i>	<i>Sig.</i>	<i>E.S</i>
English	17.08	8.030	200	2	297	15.304	.000	.033
Psychology	15.65	5.456	200					
Education	14.16	5.491	200					
Total	46.89	18.977	600					

A two way ANOVA between groups was applied to explore the cognitive ability impact of inter-departmental upon the total scale among both universities. Participants were divided in to three groups according to their departments (i.e., English, PU & UMT, Psychology, PU & UMT, Education and PU & UMT). The interaction effect between inter-departmental group was statistically significant, $F(2,297) = 15.304$, $P = .000$.

There was statistical significant main effect for departments, $F(2,297) = 5.141$, $P = .000$; however, the effect size was large (partial eta square = .033) according to Cohen (1988). Post hoc comparisons using Tukey HSD showed that the Means score for all three groups of departments was statistically significant with respect each of three the main effect for universities $F(2,297) = 1767.42$, $p = .000$ approach the statistical significance.

$H_{03.1}$ There is no Inter-departmental significant difference between undergraduate students of PU and UMT about Self-regulating Learning SRL.

Table 7

Inter-Departmental difference between PU and UMT about Self-regulating Learning

Departments	Mean	SD	N	df1	df2	F	Sig.	E.S
English	3.27	.411	200	2	297	4.657	.010	.002
Psychology	3.30	.385	200					
Education	3.27	.296	200					
Total	3.28	.366	600					

A two way ANOVA between groups was applied to explore the responses about Self-regulated Learning impact of inter-departmental among both universities.

The interaction effect between inter-departmental group was statistically significant, $F(2,297) = 4.657$, $P = .010$. There was statistical significant main effect for departments, $F(2,297) = .255$, $P = .010$; however, the effect size was large (partial eta square = .002) according to Cohen (1988). Post hoc comparisons using Tukey HSD showed that the Means score for all three groups of departments was statistically significant with respect each of three the main effect for universities $F(2,297) = 2392.98$, $p = .010$ approach the statistical significance.

H_{04} . There is no significant difference between inter-universities students' regarding their cognitive abilities.

Table 8

Difference between Inter-Universities Students and Cognitive Abilities

Universities	N	Mean	SD	df	t-value	p
PU	300	16.80	7.107	298	3.150	.002
UMT	300	14.46	5.679			

An independent sample t-test to measure the difference between inter-universities students' cognitive abilities. There was significance difference between inter-universities students' cognitive abilities. The mean score of students of Punjab University ($M = 16.80$, $SD = 7.107$) and mean score of University of Management and Technology students ($M = 14.46$, $SD = 5.679$), $t(98) = .472$. There was statistically significant difference between cognitive abilities of inter-universities. So, the null hypothesis was rejected.

$H_{04.1}$ There is no significant difference between inter-universities students' regarding their responses about Self-regulated Learning

Table 9

Difference between Inter-Universities Students about Self-regulated Learning

<i>Universities</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>df</i>	<i>t-value</i>	<i>P</i>
PU	300	3.30	.347	298	1.153	0.001
UMT	300	3.25	.384			

An independent sample t-test was applied to measure the difference between inter-universities students' responses about self-regulated learning of University of the Punjab and University of Management and Technology. There was statistically significance difference between responses of inter-universities students. The mean score of PU ($M=3.30$, $SD=.347$) and mean score of UMT ($M=3.25$, $SD=.384$), $t(298) = 1.153$. It was concluded that there was statistically significant difference between responses of inter-universities. So, the null hypothesis was rejected.

Discussion

The present study found a significant positive relationship between cognitive abilities and self-regulated learning among undergraduate students. This finding suggests that students with stronger cognitive abilities, including attention, memory, reasoning, verbal comprehension, processing speed, and problem-solving, are more likely to regulate their learning effectively through planning, monitoring, and self-evaluation. The finding is consistent with recent evidence showing that self-regulated learning is closely associated with higher-order cognitive processes and academic success. A recent systematic review concluded that self-regulated learning strategies consistently predict better academic performance and are strengthened by cognitive and metacognitive skills.

The present study revealed that students enrolled in the public university demonstrated significantly higher cognitive abilities and self-regulated learning than students from the private university. One possible explanation is that public universities often admit students through more competitive entry requirements, exposing learners to academically demanding environments that promote critical thinking and independent learning. Institutional factors such as instructional quality, academic expectations, and campus learning culture may also contribute to these differences. Previous higher education research has shown that learning environments and institutional support substantially influence students' development of self-regulated learning strategies and academic engagement.

The study further showed that female students scored significantly higher on cognitive ability measures than male students. Although evidence regarding gender differences in cognitive ability is mixed, contemporary educational research suggests that female students frequently outperform male students in academic tasks requiring sustained attention, verbal processing, organization, and learning discipline. These differences are often attributed to study behaviors, persistence, and learning engagement rather than innate cognitive superiority. Therefore, the higher cognitive scores observed among female students in the present study may reflect differences in academic behaviors and learning experiences.

Another important finding was that female students reported significantly higher levels of self-regulated learning than male students. This finding agrees with several recent studies. A Pakistani study reported that female university students demonstrated significantly better task analysis and goal-setting strategies than male students. Likewise, research on medical students at the University of Tabuk found that females scored higher on environmental structuring, time management, help-seeking, and self-evaluation. Similarly, recent research on metacognitive self-regulation showed that female students were better at planning, goal-oriented learning, comprehension strategies, and self-reflection.

However, not all studies have reported significant gender differences. For example, Susilowati et al. (2020) found that although female students had slightly higher self-regulated learning scores than males, the difference was not statistically significant. Such contrasting findings suggest that gender differences in self-regulated learning may vary according to educational context, discipline, culture, and institutional environment.

Overall, the findings suggest that cognitive abilities and self-regulated learning develop together and are influenced by institutional and gender-related factors. Universities should therefore implement instructional practices that strengthen students' attention, reasoning, problem-solving, and metacognitive regulation through active learning, reflective practice, collaborative learning, and structured academic support. Such interventions may enhance both cognitive development and self-regulated learning, ultimately improving academic achievement.

Findings

The study found that undergraduate students from the public university (PU) demonstrated significantly higher cognitive ability scores than students from the private university (UMT). Public university students also reported significantly higher levels of self-regulated learning than students enrolled in the private university. Female undergraduate students obtained significantly higher cognitive ability scores than male students, indicating better performance on the cognitive ability assessment. Female students also reported higher self-regulated learning scores than male students, suggesting greater use of planning, monitoring, and self-evaluation strategies. A positive and statistically significant relationship was found between cognitive abilities and self-regulated learning among undergraduate students. Students with higher cognitive ability scores tended to report higher levels of self-regulated learning. Overall, the findings suggest that institutional type and gender were associated with differences in both cognitive abilities and self-regulated learning among undergraduate students in Lahore.

Conclusion

The findings indicate that undergraduate students enrolled in the public university outperformed those in the private university on measures of cognitive abilities and self-regulated learning. Furthermore, female students demonstrated higher levels of both cognitive abilities and self-regulated learning than male students. A significant positive relationship between cognitive abilities and self-regulated learning suggests that students with stronger cognitive skills are more likely to employ effective self-regulated learning strategies.

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