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AN INVESTIGATION ON EFFECTS OF UNIVERSITY STUDENTS' COGNITIVE ABILITY ON THEIR ACADEMIC ACHIEVEMENT

Ayesha Saddiqa[1] & Shazia Malik[2]

[1]MPhil Scholar, Institute of Education and Research, University of Punjab, Lahore, Pakistan
[2]Assistant Professor, Institute of Education & Research, University of Punjab, Lahore, Pakistan

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ABSTRACT

The aim of this study was to investigate relationship between university students' academic achievement and their cognitive ability. The cognitive ability has variety of domains including reasoning, memory, and problem-solving skills. The study aimed to improve learning and fostering academic success among diverse student population in universities. Understanding the perceptions of university students about cognitive ability & academic achievement is a major challenge for university students. The relationship between university students' academic achievement and cognitive ability is significant area of research in education. The sample was collected from Punjab University Lahore. 300 university students were selected as sample. Data was collected over stratified random sampling. Questionnaire was used with 5-point Likert scales to collect the data. The data analysis was performed over frequency distribution to analyze research objectives. The findings highlighted the significant effect of cognitive ability on students' academic achievement. The information from the questionnaire shed light on a number of cognitive skills, including comprehension, problem-solving, and fast thinking, all of which were found to have an impact on students' academic achievement.

Correspondence: Shazia Malik
Email: shazia.ier@pu.edu.pk
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INTRODUCTION

The improvement in university students' academic achievement requires presenting them with the brainstorming exercises like, the class debates, quiz contests and problem-solving situations. These exercises are intended to develop their cognitive ability for critical thinking and cognitive ability to efficiently digest information (Smith & Johnson, 2023). The information processing model is important in predicting important characteristics of cognitive ability including working memory,

fluid intelligence, and number sense, according to study. Individual variances in academic success are thus strongly influenced by these cognitive capacities. Tikhomirova (2020) has reported on the particular and complex correlations that exist between different measures of cognitive ability and academic achievement at several stages of higher education. Cognitive ability refers to a person's aptitude for thought, which aids in learning and the thoughtful application of knowledge gained to succeed academically. This includes students' abilities to plan, monitor, and assess understanding to improve academic achievement. A university student uses their cognitive ability to accomplish any academic success act ranging from simple to difficult & to perform functions that include awareness, learning, judgment, memory, perception, reasoning and understanding (American Psychological Association, 2021).

To examine these ideas for university students' academic achievement and cognitive ability is, as one might anticipate, a challenging attempt that calls for perseverance. In addition to the cognitive ability of university students need other attributes to attain high learning and persistence in their studies, such as motivation, enthusiasm in the subject matter, and a good attitude (Smith & Johnson, 2023). However, variations in university students' cognitive capacities cannot fully account for the individual learning variances that have been found among them. These differences have to be seen as the outcome of the complex and dynamic interaction between cognitive traits of the university students (Hayat, Shateri, Amini & Shokrpour, 2020). Understand the natural mechanisms of brain absorbs, processes, retains knowledge, cognitive ability includes student motivation, engagement, and retention (Okatahi, Apeh & Iyiegbuniwe, 2020). It is recognized that cognitive ability fosters student motivation and engagement, memory and recall, and problem-solving abilities. It fosters creativity while raising university students' general academic success across the board. Academic achievement is critical to cognitive growth of students because cognitive ability mainly in reading and writing have significant influence on several life outcomes, like longevity, mental health, and educational success.

As expected, a great deal of research over last few decades has studied critical components linked to academic achievement and how to apply these components into intrusion or teaching to support learning disabilities and improve academic success (Wood, Coughlin & Khoury, 2018). University students' can effectively express cognitive academic bidirectional relations because their primary function is academic achievement (Ritchie & Tucker, 2018). Students use their cognitive ability to learn academic skills, and completing most academic tasks requires using cognitive ability (Peng, Barnes, Wang, Wang, Swanson & Tao, 2018). Hence, academic achievement exercises completed in universities may function as long-term cognitive training programmer. According to this cognitive reasoning, university years, when cognitive ability work is rigorously taught and performed, may be the time when bidirectional relationships between cognitive skills and academic accomplishment are most evident (Peng, Wang, Wang & Lin, 2019). Many cultures view achieving the scholastic achievement as a way to guarantee future prosperity and wealth. The emphasis on education in this culture may motivate university students to work harder and prioritize their academic ambitions (Balestrini & Stoeger, 2018). Additionally, it is critical that the community recognize the role those cognitive skills & talents play in maintaining adolescents' potential for academic success (Sukadari & Huda, 2021).

According to Funa, Ricafort, Jetomo and Lasala (2024), the students' conceptual comprehension is significantly improved by the cognitive ability learning concepts as well as practices. The university students' academic achievement has greatly improved due to their cognitive ability. Even yet, its' depends on students' levels of cognitive ability, cognitive ability may differ for university students. A regular, high-quality education has been found to have a direct effect on academic achievement and cognitive development. Additionally, it could indirectly impact the academic and cognitive development by promoting the cognitive academic directionality (Peng & Kievit 2020). University students' academic achievement may be improved by giving them problem-solving scenarios in the classroom, subject discussions, quiz contests, brainstorming exercises, and other activities that foster diverse thinking. Students' cognitive ability are improved by stable, excellent universities. Working memory, and fluid intelligence are all primarily predicted by the information processing model and are associated with individual variances in academic achievement. Besides, it was discovered how precisely various measures of cognitive ability relate to academic success at every university level (Tikhomirova, 2020).

Moreover, intricate relationships between university students' academic achievement & cognitive ability are difficult to undertaking that bears noteworthy consequences for domains of education and student well-being. Academic achievement is a crucial indicator of university student's growth and proficiency since it shows their comprehension of the material and their capacity to apply it in a variety of settings. Academic achievement is vital for university students' (Muro, Soler, Cebolla & Cladellas, 2018). The cognitive ability of critical thinking, information processing, and problem-solving all are belonged to wide category of intellect. It significantly affects academic achievement. Research indicates that cognitive ability, academic success, are strongly correlated with academic achievement (Mohammed, 2022). Moreover, the research has demonstrated a consistent historical relationship amid university student academic achievement & their extraversion, conscientiousness and cognitive ability (Masoumeh, 2023). The hierarchical construal of mental processes dominates most cognitive and neurological conceptions of human mind (Haier, 2017). Three basic hierarchical levels for mental skills are proposed by this approach. Thus, within tasks, there exist procedures that are specialized to the given task, similar to addition within that task, spatial orientation, as well as object categorization.

At this point, it may be important to consider material's specifics, the context, and one's capacity for handling it. Task-specific skills are broadly categorized into multiple categories based on common cognitive processes within activities. For example, sorting & class reasoning in classification, mental rotation and mental imaging in spatial reasoning, etc. While there is ongoing debate on the precise size, specification, and degree of domains' functional autonomy, certain domains are acknowledged in all fields of psychological study. Likewise, linguistic, social, cognitive, spatial and mathematical thinking all become separate fields likewise developmental, cognitive and differential psychology. These areas differ in representations, mental processes, and problem-solving abilities (Demetriou & Spanoudis, 2018). Liu (2019) discovered that academic achievement, mainly in exams administered by universities, has impact on university students' future growth. Li (2019), focused manifestation of university student's practice and learning, and an indication of their level of cognitive ability and particulars of their learning standard and profile. Academic achievement is primary benchmark for

university entrance and the main objective of student learning in China's method of evaluating the student advancement.

Numerous previous researches have established critical impact that cognitive ability talents play in students' academic achievement. The cognitive ability is capacity of human brain to integrate reasoning, memory, idea transformation, and information extraction and processing. This is a crucial mental attribute of pupils finishing their coursework (Vilia, Candeias, Neto, Franco & Melo, 2017). To investigate the connection amid academic accomplishment of students and cognitive capacity dimension, Paul used multivariate analysis in a stepwise manner to produce normalized regression coefficients (β). He found that absolute association between a student's cognitive ability and their university accomplishment was similar (Grass, Strobel & Strobel, 2017). Liu revealed a connection between academic achievement of Chinese students and cognitive skills of 499 Chinese children in domains of information processing, math, and spatial imagery. They discovered a strong correlation between students' abilities in calculation, information processing, and visual-spatial imagery with their scholastic progress (Liu, Wei, Chen, Hugo & Zhao, 2021). The potential effects of the measure domain on correlations with academic success is that, ways in which diverse achievement measures and/or domains affect link between achievement and cognitive ability have not received much attention in literature.

Differentiable associations amid cognition and academic achievement can are less clear: University students with high cognitive ability scores may take their academic work seriously in an attempt to avoid mistakes and may aspire to perfectionism (Smith & Johnson, 2023). Therefore, tests with the standardized content and final exams may show the negative effects of having high standards for cognitive ability. Moreover, it's likely that these processes are more apparent in specific disciplines given that many students have concern in this area about their academic achievement (Barroso et al., 2021). It is one of the most well-researched & trustworthy predictors of academic achievement for university students The results show the substantial correlation amid cognitive ability, critical thinking and metacognitive abilities. These performance evaluations take the shape of multiple-choice questions, essays, projects, assignments, and exams. Some studies revealed no significant link at all, while others discovered a positive relationship between students' academic achievement and cognitive ability (Shirazi & Heidari, 2019). In this connection, the university students with higher cognitive abilities are more likely to succeed academically. Universities should be encouraged to offer cognitive training if there is relationship between academic achievement & cognitive ability (Pooja, 2017).

Research Objectives

1. To investigate the effects of cognitive ability of university adolescence across different stages of their academic achievement.
2. To investigate students' perceptions about their cognitive ability based on prior educational experiences and their influence on university academic achievement.
3. To examine the effects of study habits on cognitive ability and academic achievement among university students.

Research questions

1. What are the effects of cognitive ability of university adolescence across different stages of their academic achievement?
2. What are the effects of study habits on cognitive ability and academic achievement among university students?
3. What are students' perceptions about their cognitive ability based on their prior educational experiences and their influence on university academic achievement?

LITERATURE REVIEW

Investigating the possible relationship amid university students' academic achievement & cognitive ability has received more attention recently. With an emphasis on studies evaluating the impacts of cognitive ability on tests, language, reading, learning, and scoring, this literature review examines body of research on relationship between cognitive ability treatments and academic achievement (Malbas, Kilag, Diano, Tiongzon, Catacutan & Abendan, 2023). According to Ani, Smith and Doe (2021) cognitive ability refers to the abilities your brain employs to carry out basic daily tasks like reading, speaking, thinking, and learning. These abilities have an impact on a university student's academic success. It is a general cognitive skill that includes planning, reasoning, problem-solving, abstract thought, understanding complicated ideas, and experience-based learning can help students leverage their cognitive skills more effectively. The cognitive ability of university students might vary in the classroom, show the signs of being high, middle/average, or low is considered as academic achievement. When it comes to memory, there is frequently a stronger cognitive ability when it comes to verbal & visual-spatial activities, but only when it comes to sophisticated visual-spatial memory.

Gender has no discernible impact on the academic success of university students. Male and female students attain diverse academic goals. Thus, it is important to know into how gender and cognitive capacity affect students' academic concepts (Oladejo, Johnson & Carter, 2021). Cognitive ability refers to the mental skills necessary for learning, including problem-solving, memory, attention, and reasoning. The strong cognitive ability is necessary for learning new material, remembering it, and using it in variety of situations to improve academic performance (Peng & Kievit, 2020). Different learning styles, like audio and visual, affect how university students absorb and process knowledge. The students can find techniques to assist them study effectively for academic accomplishment by having understanding of their learning style (Lövdén, Fratiglioni, Glymour, Lindenberger & Tucker, 2020). Because it influences university student's motivation to take part in academic process and persevere in the face of obstacles to academic achievement, cognitive ability is a crucial component of learning (Tsai, Chen & Lin, 2020). Academic achievement is likely to be attained by university students who are intrinsically satisfied with learning than by those who are not (Talukder, Samuel & Hossain, 2022).

Additionally, the university student's cognitive ability is defined as their capacity to control their own ideas, feelings, and actions so as to better their academic achievement. According to Robinson et al. (2020), students who apply their cognitive ability to control their own learning are more adept at maintaining focus, establishing objectives, and tracking advancement in learning. The cognitive

ability of university students' might impact their experiences and knowledge in order to acquire and comprehend new material. Academic achievement is likely for students from backgrounds that offer good cognitive capacity and exposure to a variety of ideas and opinions (Adaku, Ankrah & Ndekugri, 2022). The cultures of many Pakistani institutions place a high importance on education and see academic achievement as a means to future success and affluence. The students may be inspired to put in extra effort and prioritize their academic performance by this societal emphasis on education (Balestrini & Stoeger, 2018). Cognitive ability is objectively stated as offering learning potential despite the developmental or educational level (Demetriou, Spanoudis, Žebec, Andreou, Golino & Kazi, 2018).

Thus, there would be stronger association between cognitive ability and academic accomplishment at the university level. However, at different developmental stages of university study, the relative value of distinct cognitive processes in predicting academic accomplishment varies, signifying their relative importance at that specific time (Demetriou, Spanoudis, Žebec, Andreou, Golino & Kazi, 2018). As a result, for college students' cognitive ability would start to accurately predict academic achievement. The academic achievement is likely to be influenced by carefulness than by cognitive ability. University students' academic achievement may play role, but given current environment, cognitive ability may have a greater influence (Demetriou et al., 2018). Investigating the effects of cognitive training programs on academic outcomes could offer valuable insights. He investigated the role those general cognitive talents play in the increases in academic achievement of university students' who are left behind as well as those who live with their parents in the impoverished rural locations. Using the Raven's Standard Progressive Matrices (Raven IQ), they evaluated the general cognitive aptitude of 4,780 sample pupils, and a test based on the curriculum was used to gauge the academic achievement.

They discovered that for typical student, achievement gains were predicted by IQ and being left behind. For university students with delays in their general cognitive capacity, he did not instantly transfer into a loss of academic accomplishment among low-IQ students. Tikhomirova et al. (2020) investigated and examined connection between academic success in college and cognitive ability. Cognitive ability is fundamental factor in determining academic success amid university students. By understanding development of cognitive skills, universities can foster environment conducive to academic excellence and personal growth. The number sense, visuospatial working memory, and information processing speed were thought to be predictive of overall academic achievement, as determined by university grades. Three hundred college students from the different departments participated in this study. Thus, the computerized Choice Reaction Time, Corsi Block-Tapping, and Number Sense tests were used to assess information processing speed, visuospatial working memory, and number sense, respectively. The Standard Progressive Matrices test, administered with paper and pencil, was used to assess fluid intelligence. Both structural equation modelling and correlation analysis were finished.

RESEARCH METHODOLOGY

The design of this study is causal-comparative. A causal-comparative design aims to show cause-and-effect correlations amid independent and dependent variables without altering or adjusting

the independent variable. This study examines connection between university students' academic success and cognitive ability. In this study, survey method was utilized. The survey method is used as collection of statements or inquiries, sometimes known as items that are used to assess a respondent's self-report in questionnaires or interviews. As a result, a written survey with questionnaire was the type employed in this investigation. It is a beneficial method to use a survey for data collection of a research. In this linking, a survey questionnaire is given to according to Creswell (2012), a smaller group of people known as the sample, representing the population is used to identify trends in the attitudes, behaviors, beliefs, or other comparable characteristics of a larger group of people known as the population.

In the quantitative research, this strategy is called the survey method. The population under this investigation consisted of all departments located on the University of the Punjab Lahore campus. All undergraduate students across all departments were included in study's accessible population. The method of stratified random sampling was applied. By ensuring that sample is representative of the population, it reduces bias and makes it possible to extrapolate research findings to the larger population. Participants in study are university students. 300 students from the department were the sample of the study. A questionnaire was distributed to the public university students in order to determine the impact of cognitive ability on academic achievement among university students. The Statistical Package for Social Sciences, version 18 (SPSS Inc., Chicago, USA), was used to conduct statistical analyses.

DATA ANALYSIS

The presentation of the demographic data gathered from the respondents came before the results related to the research question. Similar conclusions apply to research on the university students' academic performance. In this drive, every questionnaire that was given to 300 university students was returned.

Table 1 What is your current GPA?

	GPA	Frequency	Percent	Valid Percent
Valid	1.5-1.9	2	.7	.7
	2.0-2.5	19	6.3	6.3
	2.6-2.9	45	15.0	15.0
	3.0-3.5	153	51.0	51.0
	3.6-4.0	81	27.0	27.0
	Total	300	100.0	100.0

A considerable percentage of students (51.0%) succeed academically in middle level, with a GPA of 3.0 to 3.5. Besides, a sizable portion of students 27.0%, have GPAs between 3.6 and 4.0, indicating that they are exceptional achievers. However, fewer pupils at the lower end of spectrum are having academic difficulties, as only 0.7% of students have GPA between 1.5 and 1.9. These results indicate properly dispersed distribution amid various GPA categories, providing education institutions with crucial information to help them tailor support services, know student achievements, and promote academic success.

Table 2 Are you satisfied from your GPA?

GPA Satisfaction		Frequency	Percent	Valid Percent
Valid	Yes	214	71.3	71.3
	No	86	28.7	
	Total	300	100.0	100.0

Based on data on students' satisfaction with their GPA among a sample of 300 students, a significant majority of university students, or 71.3%, are happy with current academic success. This suggests that majority of students think their GPA is proper for their goals or aspirations in school. However, 28.7% of students said they were unhappy with their GPA, indicating that a sizable percentage of students might feel academic performance isn't up to par. In order to tailor interventions & support services, possibly talking issues that lead to unhappiness & improving plans that inspire academic success for all students, educators and administrators must have thorough understanding of these satisfaction levels.

Table 3 How many hours you spend in your study?

Study Hours		Frequency	Percent	Valid Percent
Valid	1-2	106	35.3	35.3
	3-4	107	35.7	35.7
	5-6	39	13.0	13.0
	7-more	48	16.0	16.0
	Total	300	100.0	100.0

About same proportion, 35.7%, reported studying for three to four hours, while a sizable number, 35.3%, reported studying for one to two hours. Since these are majority of students, a sizable fraction of them study for considerable amounts of time. Moreover, 13.0% and 16.0% of each session reported studying for five to six hours and seven hours or longer, respectively. These results demonstrate that while students' levels of study intensity vary, a significant proportion of them devote a significant amount of their time to academic achievement. In this linking, it is imperative that the educational institutions comprehend these study patterns in order to customize academic materials and support academic services in the way that maximizes the students' study habits and propels them towards academic success.

Table 4 Are you repeating any Course?

Repeating course		Frequency	Percent	Valid Percent
Valid	Yes	35	11.7	11.7
	No	264	88.3	88.3
	Total	300	100.0	100.0

According to university student repetition statistics, 88.3% of the 300 respondents do not retake any courses. This demonstrates that most college graduates receive their degrees without having to retake any coursework. On the other hand, 11.7% of students reported having to retake at least one

course, indicating that a very small percentage of students may have had issues or challenges with their assignments. The importance of academic support networks and interventions for students is underscored by this study. It also highlights the need for educational institutions to offer academic advising, tutoring, and extra instruction to students who may be at risk of falling behind. Gaining more insight into the reasons behind course retakes can help to develop strategies to increase the retention rates.

Table 5 Are you working at a job during program?

	Job	Frequency	Percent	Valid Percent
Valid	Yes	58	19.3	19.3
	No	242	80.7	80.7
	Total	300	100.0	100.0

The majority of the 300 students surveyed, 80.7% do not work while they are enrolled in classes, according to study on whether university students work through academic program. This suggests that a significant portion of students are putting their academic responsibilities ahead of the extra work that comes with being employed. Still, 19.3% of students reported working while enrolled in their degree, demonstrating that only a small percentage of students manage to juggle employment and education concurrently. This data demonstrates range of circumstances and challenges faced by university students; some may need to balance work and school to preserve financial security or gain work experience.

Table 6 Are you Intelligent or Hard Working?

	Are you?	Frequency	Percent	Valid Percent
Valid	Intelligent	138	46.0	46.0
	hard working	162	54.0	54.0
	Total	300	100.0	100.0

The information on university students' perceptions of themselves shows that 300-student sample has an interesting self-evaluation. 54.0% of participants described themselves as "hard working," suggesting that they devoted great deal of time and energy to academic achievement. In addition, 46.0% of respondents said they considered themselves to be "intelligent," demonstrating their self-assurance in their intellectual capacity. These self-evaluations highlight the many attributes that students list about themselves, stressing work ethic and academic prowess. Students' views about themselves can affect motivation, study habits, and academic performance, which highlights how important it is to support students in creating a positive self-concept to enhance their educational experiences and results.

Table 7 I have cognitive ability to answer quickly of any question in classroom

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	33	11.0	11.0
	Agree	96	32.0	32.0
	Neutral	99	33.0	33.0

	Disagree	52	17.3	17.3
	Strongly Disagree	20	6.7	6.7
	Total	300	100.0	100.0

Statements like "I lost answers during study when I felt stress" were clear. A sizable percentage of respondents agreed, with 32.0% agreeing and 11.0% strongly agreeing that stress has detrimental impact on their ability to recall study material. All things considered, these answers show that a sizable 43.0% of the sample feels that stress negatively affects their ability to retain information, which in turn affects their academic achievement. On the other hand, 33.0% of respondents had no opinion, indicating a lack of conviction about the connection between stress and memory loss when studying. A lower percentage disagreed (17.3%) or strongly disagreed (6.7%) with the statement, meaning that 23.9% of the respondents do not believe stress has a substantial impact upon their memory recall.

Table 8 I lost answers during study when I felt stress

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	95	31.7	31.7
	Agree	88	29.3	29.3
	Neutral	61	20.3	20.3
	Disagree	35	11.7	11.7
	Strongly Disagree	21	7.0	7.0
	Total	300	100.0	100.0

The frequency and distribution of replies to the statement, "I lost answers during study when I felt stress," are shown by the data that are shown. Three hundred people in all took part in the poll. With 29.3% agreeing and 31.7% strongly agreeing, the majority of respondents—61.0% of the sample, agreed or strongly agreed with the statement. This implies that a considerable proportion of people encounter problems remembering facts or solutions when studying under pressure. On the other hand, 20.3% of respondents expressed a neutral opinion, meaning they were undecided about the statement. Only a smaller percentage, 11.7 percent, disagreed or strongly disagreed (7.0 percent), meaning that 18.7% of the people did not think stress affected their ability to remember answers when studying.

Table 9 My cognition helps me to achieve learning tasks

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Agree	71	23.7	23.7	23.7
	Agree	136	45.3	45.3	69.0
	Neutral	68	22.7	22.7	91.7
	Disagree	14	4.7	4.7	96.3
	Strongly Disagree	11	3.7	3.7	100.0
	Total	300	100.0	100.0	

Responses to a statement about participants' agreement or disagreement with following claim are summarized in data: "I lost answers during study when I felt stress." The distribution of responses from

the 300 respondent's shows that a sizable percentage of people believe stress has detrimental effect on memory for answers during study sessions. In particular, 45.3% and 23.7% strongly agreed with the statement, making up approximately 69% of responses. This suggests that a common opinion amid responders is that stress does, in fact, interfere with their ability to learn. 22.7% of respondents had no view or were unsure about the connection between stress and memory loss during studying. Just 4.4% of respondents disagreed (or strongly disagreed) with statement, compared to 3.7% who severely disagreed.

Table 10 I have ability to participate in extra activities to improve academic achievement.

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Agree	70	23.3	23.3	23.3
	Agree	85	28.3	28.3	51.7
	Neutral	83	27.7	27.7	79.3
	Disagree	43	14.3	14.3	93.7
	Strongly Disagree	19	6.3	6.3	100.0
	Total	300	100.0	100.0	

Most participants said they agreed with the statement to varied degrees. In the particular, 28.3% of respondents agreed and 23.3% strongly agreed that they frequently forget their answers when studying under pressure. All of these answers point to a serious worry that respondents had over the negative impact of stress on their ability to think clearly. Furthermore, 27.7% of respondents had a neutral approach, indicating that they were unsure or did not have a firm opinion regarding the connection between stress and memory loss when studying. Only a lower percentage of respondents 20.6%. strongly disagreed (6.3%) or disagreed (14.3%) with the statement. These people do not believe that the stress has a substantial negative impact on their memory retention during the study sessions.

Table 11 self-assessment through cognitive ability is important for academic success

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	101	33.7	33.7
	Agree	111	37.0	37.0
	Neutral	56	18.7	18.7
	Disagree	20	6.7	6.7
	Strongly Disagree	12	4.0	4.0
	Total	300	100.0	100.0

The table revealed 33.7% respondents strongly agreed and 37.0% agreed with the statement, collectively representing 70.7% of responses. This indicates a strong consensus among respondents that evaluating one's own cognitive abilities plays the crucial role in the academic achievement. Moreover, 18.7% of respondents expressed a neutral stance, indicating a lack of strong opinion or uncertainty regarding the statement. A smaller proportion disagreed (6.7%) or strongly disagreed (4.0%), totaling 10.7% who do not perceive self-assessment over cognitive ability as important for academic success.

Table 12 I am good in remembering rather than writing that affect academic achievement.

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Agree	66	22.0	22.0	22.0
	Agree	99	33.0	33.0	55.0
	Neutral	69	23.0	23.0	78.0
	Disagree	43	14.3	14.3	92.3
	Strongly Disagree	23	7.7	7.7	100.0
	Total	300	100.0	100.0	

Out of the total replies, 55.0% strongly agreed and 33.0% agreed with statement. This suggests that a majority of respondents think that having good memory has a beneficial effect on academic accomplishment, which may have impact on how well they can apply and recall knowledge during tests. On the other hand, 23.0% of respondents had no view, indicating ambiguity or indecision regarding the statement. Just 21.0% of respondents disagreed (14.3%) or strongly disagreed (7.7%) with the statement, indicating that memory skills do not have a substantial impact on students' academic achievement.

Table 13 After taking a test, I feel I could have done better than I actually do.

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	92	30.7	30.7
	Agree	101	33.7	33.7
	Neutral	68	22.7	22.7
	Disagree	23	7.7	7.7
	Strongly Disagree	15	5.0	5.0
	11.00	1	.3	.3
	Total	300	100.0	100.0

Thirty-seven percent strongly agreed and thirty-seven percent agreed that they could have done a better job than they did. When combined, these answers make up 64.4% of total, suggesting that respondents generally had feeling that they might have done better. 22.7% respondents expressed no opinion, indicating that they were unsure or had conflicting emotions regarding how well they performed on test compared to potential. A lesser percentage disagreed (7.7%), disagreed strongly (5.0%), or chose option with vague value (0.3%), making up 13.0% who did not believe they could have done better.

Table 14 I got more grades with fresh mind.

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	120	40.0	40.0
	Agree	118	39.3	39.3
	Neutral	42	14.0	14.0
	Disagree	12	4.0	4.0
	Strongly Disagree	7	2.3	2.3
	Total	300	100.0	100.0

In all, 79.3% of responses were given, of which 40.0% strongly agreed and 39.3% agreed with the statement. This indicates that a high percentage of respondents firmly believe that having a clear mind or staying awake improves academic performance. 14.0% of participants conveyed no view, signifying uncertainty or lack of a firm belief about relationship between academic performance and mental freshness. The lower percentage of respondents (6.3%) disagreed (4.0%) or strongly disagreed (2.3%) with statement. They did not believe that mental health & academic achievement were correlated.

Table 15 I have ability to solve problems that affect my grades.

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	53	17.7	17.7
	Agree	143	47.7	47.7
	Neutral	72	24.0	24.0
	Disagree	21	7.0	7.0
	Strongly Disagree	11	3.7	3.7
	Total	300	100.0	100.0

Out of 300 participants, most of them said they were confident in their ability to use cognitive skills to solve problems that have an impact on their grades. In particular, 47.7% of respondents agreed and the 17.7% strongly agreed with the statement, making up 65.4% of the total responses. This suggests that respondents strongly believe that their academic success is directly influenced by their cognitive abilities. Additionally, 24.0% of the respondents expressed no opinion, indicating confusion or a lack of conviction regarding the connection between grades and cognitive ability. 10.7% of respondents did not believe that their cognitive talents have a substantial impact on their academic success, while a lesser percentage disagreed (7.0%) or strongly disagreed (3.7%) with the assertion.

Table 16 Statement: I have ability to complete my tasks within time

		Frequency	Percent	Valid Percent
Valid	Strongly Agree	84	28.0	28.0
	Agree	98	32.7	32.7
	Neutral	60	20.0	20.0
	Disagree	43	14.3	14.3
	Strongly Disagree	15	5.0	5.0
	Total	300	100.0	100.0

A total of 60.7% of replies indicated that agreed with statement, with 28.0% strongly agreeing and 32.7% agreeing. This suggests that a common assumption among respondents is that their cognitive talents have a big impact on their capacity to participate actively in class discussions, which in turn affects their grades. 20.0% of respondents had no opinion, indicating doubt or a lack of conviction on connection between grades and classroom involvement and cognitive ability. Just 19.3% of respondents disagreed (14.3%) or strongly disagreed (5.0%) with the statement, meaning

they do not believe that their cognitive talents have significant influence on how well they perform academically in conversations.

Table 17 I often review my assignments and notes for better academic results

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Agree	70	23.3	23.3	23.3
	Agree	107	35.7	35.7	59.0
	Neutral	64	21.3	21.3	80.3
	Disagree	38	12.7	12.7	93.0
	Strongly Disagree	21	7.0	7.0	100.0
	Total	300	100.0	100.0	

The majority demonstrated positive inclination towards this practice. Specifically, 23.3% strongly agreed and 35.7% agreed that they review their assignments and notes for improved academic performance. Together, these responses account for 59.0% of total, indicating a strong consensus among respondents that regular review positively impacts their academic outcomes. Also, 21.3% of respondents were neutral, suggesting uncertainty or lack of a definitive opinion on effectiveness of reviewing assignments. A smaller proportion disagreed (12.7%), strongly disagreed (7.0%) with the statement, totaling 19.7% who do not believe that reviewing materials contributes significantly to their academic success.

Table 18 I felt cognitive pressure sometime for getting good grades.

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Agree	73	24.3	24.3	24.3
	Agree	97	32.3	32.3	56.7
	Neutral	70	23.3	23.3	80.0
	Disagree	45	15.0	15.0	95.0
	Strongly Disagree	15	5.0	5.0	100.0
	Total	300	100.0	100.0	

Many admitted to feeling under cognitive pressure to perform well in school. In particular, 24.3 percent strongly agreed & 32.3 percent agreed that they irregularly experience cognitive pressure to achieve high marks. When taken as whole, these answers represent 56.7% of total, suggesting that the respondents are generally aware of the psychological burden that comes with meeting the expectations for academic performance. Furthermore, 23.3% of respondents expressed no opinion, indicating ambiguity or a lack of conviction about cognitive pressure and its effect on grades. A lower percentage (15.0%) disagreed or strongly disagreed (5.0%) with the statement, meaning that 20.0% of respondents do not believe that cognitive pressure has a substantial impact on their desire to get good grades.

Table 19 I have cognitive ability to understand new concepts of academic work.

		Frequency	Percent	Valid Percent	Cumulative %
Valid	Strongly Agree	115	38.3	38.3	38.3
	Agree	137	45.7	45.7	84.0

Neutral	36	12.0	12.0	96.0
Disagree	5	1.7	1.7	97.7
Strongly Disagree	7	2.3	2.3	100.0
Total	300	100.0	100.0	

A substantial proportion of respondents expressed trust in their cognitive capacity to understand novel material, with 45.7% strongly agreeing and 38.3% agreeing. The total of these responses was 84.0%, indicating a high degree of agreement regarding their comprehension of the academic topic. Moreover, 12.0% of participants had a neutral stance, signifying uncertainty or a lack of conviction about their ability to understand fresh concepts cognitively. This represents a subset of participants who may not have held firm beliefs about their aptitude for comprehending academic material. Still, just 1.7% of respondents disagreed, and 2.3% disagreed strongly with the assertion. These responses accounted for 4.0% of total, indicating a lack of confidence in certain respondents' cognitive abilities.

DISCUSSION

The results show opinions on cognitive ability and how they affect academic achievement are not all the same. The vast majority respondents say they are confident in their ability to think through new ideas, remember the knowledge throughout tests, and do assignments on time. Therefore, their apparent cognitive ability and aptitude for academic contexts are highlighted by this confidence. Simultaneously, a noteworthy recognition of impact of cognitive strain on performance is present, indicating an understanding of psychological obstacles linked to attaining high academic standing. Different people have different abilities towards work in classroom and exam environments. While many people like the classroom activities, others express confusion or discomfort when taking tests. There is a need of providing academic counseling, tutoring, and mentorship programs can help the students leverage their cognitive skills more effectively. In this connection, these results highlight how crucial it is to address each person's perspectives and difficulties with cognitive abilities in the classroom. Thus, the teachers can use these findings to create the specialized assistance plans that encourage student.

Utilizing data collected via survey questionnaire the study sought to determine how 300 university students' academic achievement was impacted by their cognitive abilities. The results showed a strong positive effect ($r = 0.313$, $p < 0.01$) on academic achievement and cognitive ability. This shows that while university students with lower cognitive abilities could find it difficult to achieve greater academic success, university students with the higher cognitive abilities typically perform better academically. The information from the questionnaire shed light on a number of cognitive skills, including comprehension, problem-solving, and fast thinking, all of which were found to have an impact upon the students' academic achievement. In this linking, this investigation highlights the importance of the cognitive ability and suggests avenues for enhancing the academic achievement through targeted interventions and support systems. The significance of the cognitive ability in academic achievement is emphasized by these results, which also point towards the possibility of improving the overall student achievement through educational interventions that target cognitive skill development.

CONCLUSION

The importance of cognitive ability in determining university students' academic achievement is shown by study. An extensive investigation revealed a significant effect of academic achievement and greater levels of cognitive ability, that include problem-solving, comprehension & adaptability. Also, it was shown that students' opinions of their cognitive capacities influenced their academic achievement, emphasizing the psychological significance of confidence and self-evaluation. These results highlight how critical it is to support students' development of cognitive skills in addition to providing them with techniques to increase their confidence in cognitive abilities. Utilizing these insights, educational institutions and instructors can design interventions that support the students' academic confidence in addition to their cognitive talents, creating the climate that is favorable to academic success in university settings. The subsequent studies could delve deeper into particular cognitive functions & efficacious teaching strategies meant to optimize learners' cognitive abilities and scholastic achievements.

Recommendations

1. The present study may be replicated with the larger size of population with more sample size through multiple resources of information in order to extract innovative information thereby contributing the knowledge.
2. The future scholar may be assessed cognitive ability as a specific ability and their impact on students' academic achievement at different level. This research may be conduct in future by using experimental pre-test post-test design.

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