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RELATIONSHIP BETWEEN THE COGNITIVE ABILITIES AND ACADEMIC PERFORMANCE OF STUDENTS ENROLLED IN GRADE 6

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Abstract

The cognitive process involves knowledge and the development of intellectual skills. This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills. This study aims to find a link between the psychological functioning and academic efficiency of students enrolled in Grade 6. A descriptive research framework was used in the study. The sample was 250 grade six students from Lahore schools. An instrument was used in form of questions as a basic research tool. The questionnaire is how different questions are asked by the research sample to complete the research goal. In statistics, inferential and descriptive both were used. Individual diversity in academic performance has been linked to intellectual diversity. Students with high mental skills are often very successful in academic contexts. If an academic achievement and cognitive skills are interdependent, developing cognitive skills will increase students' academic achievement. Schools may be encouraged to offer psychological training.

Keywords

Cognitive Ability, Academic Performance

1. Introduction

Thinking ability is a very important predictor of educational performance in many subjects (Taub *et al*., 2008). As the emphasis on student performance levels grows academic researchers and staff are interested in identifying factors that indicate success in supporting Student Performance. This study is based on the cognitive performance and academic performance of Grade 6 learners and will

explore the differences in learners' cognitive skills based on a variety of factors. The study examines the relationship between cognitive skills and the academic performance of students. If cognitive development improves student academic performance, schools may be encouraged to offer predoctoral training. Developing academic and cognitive skills is essential for the development of children (Peng, 2020). Intelligence has been considered the most important factor in determining the difference in performance points. Many studies have examined the relationship between intelligence and performance. In addition to the use of different methods, data collection techniques, and many research variables show that ingenuity and performance are closely related. As a result, the relationship between general intelligence and academic performance has been well established (Jensen, 1998). Performance is a broad and multi-dimensional structure. According to Steinberger (1993), the performance includes the ability and performance of a student; multidimensional; closely related to human development and mental, emotional, social, and physical development; shows the whole child; it is not related to a single incident, but occurs over time and in the course of life, with a public-school student's continued post-secondary school life and working life. Different methods have been used by researchers to evaluate Educational Performance. School-based assessments such as final marks, average grade marks, and teacher assessments can be used to assess performance. One way for people to identify is by examining their normal mental abilities.

Common thinking ability is the ability to continuously divide people by mental abilities without experimentation or work (Jensen, 1998). Thinking skills tests are commonly known as skills and competency tests or general intelligence tests. Thinking ability is thought to be composed of several consecutive structured skills with the most common thinking ability at the top (McGrew, 2009). Numeracy, literacy, and problem solving are probably most closely related to this common phenomenon, but they do not cover all aspects of human intelligence. Therefore, numeracy, literacy, and problem solving can still be linked to a skill that is not captured in the name of error and, in this case, perhaps continuous fluctuations. Moreover, since education is closely related to skill, it can be a never-ending cycle.

1.1 Spearman's Two-Factor Theory

Charles Spearman developed a feature analysis to study the relationships between experiments. Initially, he created an intelligence model in which variability in all scores of intelligence tests defined only two types of variables: first, specific features of each test (marked s); and second, the 'g' factor calculates the positive correlation of all experiments. This is known as Spearman's double theory. The 'g' factor (also known as general intelligence, common sense, or general intelligence factor) is a development developed in the psychometric investigation of cognitive skills and human intelligence. It is a variation that summarizes the positive relationship between different mental functions, reflecting the fact that a person's performance in one type of cognitive

function is often compared to that person's performance in other types of mental functions. Spearman (1904) began to expand on the idea that people who do well in one type of mental activity tend to do better than others. For example, people who are able to see patterns in a sequence of abstract drawings are also able to quickly edit pictures that will tell a story, say what three-dimensional sculptures will look like when turned, often have good vocabulary, and read comprehension, and are quick in math. This pattern of positive interpersonal relationships has intensified throughout the field of cognitive skills and has led Spearman to consider the existence of a common mental capacity similar to the common sense of intelligence.

1.2 Cattell's Models of Crystalized and Fluid Intelligence

Raymond Cattell first raised the idea of liquid intelligence and crystal and developed an idea about John Horn. Cattell-Horn's theory of fluid and crystallized intelligence suggests that intelligence is built on different abilities that work together and work together to produce individual intelligence.

1.3 Fluid Intelligence

Raymond Cattell first articulated ideas of liquid and crystal intelligence and came up with the idea for John Horn. Cattell-Horn's theory of fluid and crystallized intelligence suggests that intelligence is built on different abilities that work together and work together to produce individual intelligence. puzzle and come up with problem-solving strategies. Fluid intelligence usually decreases during the aging period. Fluid intelligence refers to

volume thinking, processing ability, adaptability, and problem solving in novels.

1.4 Crystallized Intelligence

Crystallized intelligence combines information from previous learning with previous knowledge. Circumstances that require sharp skills include reading comprehension and checking words. This kind of wisdom is based on facts and is based on what is happening. As we grow and accumulate new knowledge and understanding, glorious wisdom becomes stronger, and this kind of wisdom tends to grow with age. Crystallized intelligence (Gc) refers to the collection of information (general, procedural, and public). The functions of Gc include problem-solving with common objects as well as accurate testing of common knowledge and vocabulary (Horn & Cattell, 1966). Gf and Gc are both parts of g (common sense).

Psychological research began to focus on mapping the kind of knowledge that supports critical thinking and problem-solving ability. Mental activities such as thinking, remembering, and seeing are seen as systemic achievements by providing each participant with tools and art objects.

The following was the objective of the study: Find the relationship between comprehension and academic performance of Grade 6 students.

Following was the research question of the study:

What is the relationship between the cognitive and academic skills of Grade 6 students?

2. Methodology

The study was descriptive. A correlational research method was used to find the relationship between

cognitive abilities and the academic performance of grade 6 students. Convenient sampling is used for the study, a convenient sampling is a gathering of individuals simple to contact or reach. The reached population was the elementary school students from Lahore district. The study was included 250 students from schools in Lahore from Grade 6. The sample size was 250 grade 6 students. The study used questionnaires as the main research instrument. The questionnaire is the form in which different questions are asked by the sample of the study to complete the goal of the study. Researcher personally gathered data from the targeted sample with permission. Suitable statistics was applied on the gathered data.

3. Results

Table 1: Find the relationship between comprehension and academic performance of Grade 6 students

		Comprehension
	Pearson Correlation	$.842^{**}$
Academic Performance	Sig. (2-tailed)	.01
	N	250

N =250 and p < .000

It was found a strong and positive relationship between comprehension and academic performance of Grade 6 students r =.842. It was assumed if students' comprehensive skills developed, their academic performance improved significantly.

Table 2: Do you fail to hear people speaking to you when you are doing something else? (N=250)

Statement	Gender	N	Mean	Std. Deviation
Do you fail to hear people speaking to you when you are doing something else?	Female	125	3.33	1.171
	Male	125	3.54	1.072

In this item 250 responded. Mean (3.33) and SD for female responded is (1.171) and Mean and SD for male responded is (3.54) and (1.072)

Table 3: Do you lose your temper and regret it? **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
Do you lose your temper and regret it?	Female	125	3.46	1.177
	Male	125	3.57	1.249

In this item 250 responded. Mean (3.33) and SD for female responded is (1.171) and mean and SD for male responded is (3.54) and (1.072)

Table 4: Do you have trouble making up your mind?**.(N=250)**

Statement	Gender	N	Mean	Std. Deviation
Do you have trouble making up your mind?	Female	125	3.92	.912
	Male	125	3.77	1.044

In this item 250 responded. Mean (3.92) and SD for female responded is (.912) and mean and SD for male responded is (3.77) and (1.044)

Table 5: Do you find you forget appointments? **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
Do you find you forget appointments?	Female	125	3.91	1.040
	Male	125	3.81	1.048

In this item 250 responded. Mean (3.91) and SD for female responded is (10.40) and mean and SD for male responded is (381) and (1.048)

Table 6: Do you forget where you put something like a book? **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
Do you forget where you put something like a book?	Female	125	3.08	1.324
	Male	125	3.24	1.367

In this item 250 responded. Mean (3.08) and SD for female responded is (1.324) and mean and SD for male responded is (3.24) and (1.367)

Table 7: Do you find you forget people? **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
Do you find you forget people?	Female	125	3.31	1.273
	Male	125	3.43	1.227

In this item 250 responded. Mean (3.31) and SD for female responded is (12.73) and mean and SD for male responded is (3.43) and (1.227)

Table 8: Do you find you forget what you came to the shops to buy? **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
Do you find you forget what you came to the shops to buy?	Female	125	3.66	1.050
	Male	125	3.87	1.002

In this item 250 responded. Mean (3.66) and SD for female responded is (1.050) and mean and SD for male responded is (3.87) and (1.002)

Table 9: Do you drop things? **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
Do you drop things?	Female	125	3.76	1.006
	Male	125	3.53	1.082

In this item 250 responded. Mean (3.76) and SD for female responded is (1.006) and mean and SD for male responded is (3.53) and (1.082)

Table 10: Do you find you can't think of anything to say**? (N=250)**

Statement	Gender	N	Mean	Std. Deviation
Do you find you can't think of anything to say?	Female	125	3.20	1.374
	Male	125	3.38	1.214

In this item 250 responded. Mean (3.20) and SD for female responded is (1.374) and mean and SD for male responded is (3.38) and (1.214)

Table 11: I learn best when I know something about the topic**. (N=250)**

Statement	Gender	N	Mean	Std. Deviation
I learn best when I know something about the topic.	Female	125	3.86	1.023
	Male	125	3.65	1.072

In this item 250 responded. Mean (3.86) and SD for female responded is (1.023) and mean and SD for male responded is (3.65) and (1.072)

Table 12: I am good at remembering information**=250)**

Statement	Gender	N	Mean	Std. Deviation
I am good at remembering information.	Female	125	3.98	1.041
	Male	125	3.68	1.125

In this item 250 responded. Mean (3.98) and SD for female responded is (1.041) and mean and SD for male responded is (3.68) and (1.125)

Table 4.13: I have control over how well I learn. **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
I have control over how well I learn**.**	Female	125	3.76	1.198
	Male	125	3.54	1.196

In this item 250 responded. Mean (3.76) and SD for female responded is (1.198) and mean and SD for male responded is (3.54) and (1.196)

Table 14: I think of several ways to solve a problem and choose the best one. **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
I think of several ways to solve a problem and choose the best one.	Female	125	3.88	1.173
	Male	125	3.73	1.125

In this item, 250 responded. Mean (3.88) and SD for female responded is (11.73) and mean and SD for male responded is (3.73) and (1.125)

Table 15: I ask myself questions about the material before I begin. **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
I ask myself questions about the material before I begin.	Female	125	2.74	1.457
	Male	125	2.91	1.493

In this item Mean (2.74) and SD for female responded is (1.457) and mean and SD for male responded is (2.91) and (1.493)

Table 16: I summarize what I have learned after I finish**. (N=250)**

Statement	Gender	N	Mean	Std. Deviation
I summarize what I have learned after I finish**.**	Female	125	3.94	.989
	Male	125	3.79	1.155

In this item 250 responded. Mean (3.94) and SD for female responded is (.989) and mean and SD for male responded is (3.79) and (1.115)

Table 17: Can motivate me to learn when I need to. **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
Can motivate me to learn when I need to.	Female	125	3.18	1.287
	Male	125	3.43	1.402

In this item 250 responded. Mean (3.18) and SD for female responded is (1.87) and mean and SD for male responded is (3.43) and (1.402)

Table 18: Am aware of what strategies I use when I study**. (N=250)**

Statement	Gender	N	Mean	Std. Deviation
Am aware of what strategies I use when I study**.**	Female	125	3.10	1.332
	Male	125	3.37	1.166

In this item 250 responded. Mean (3.10) and SD for female responded is (1.332) and mean and SD for male responded is (3.37) and (1.166)

Table 19: Find myself analyzing the usefulness of strategies while I study**. (N=250)**

Statement	Gender	N	Mean	Std. Deviation
Find myself analyzing the usefulness of strategies while I study.	Female	125	3.58	1.111
	Male	125	3.49	1.168

In this item, 250 responded. Mean (3.58) and SD for female responded is (1.111) and mean and SD for male responded is (3.49) and (1.168)

Table 20: I use my intellectual strength to compensate for my weakness. **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
I use my intellectual strength to compensate for my weakness.	Female	125	3.81	1.065
	Male	125	3.65	1.099

In this item 250 responded. Mean (1.065) and SD for female responded is (.912) and mean and SD for male responded is (3.65) and (1.099)

Table 21: I am a good judge of how well I understand something. **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
I am a good judge of how well I understand something.	Female	125	3.83	1.079
	Male	125	3.61	1.191

In this item 250 responded. Mean (3.83) and SD for female responded is (.1.079) and mean and SD for male responded is (3.61) and (1.191)

Table 22: I find myself using helpful learning strategies automatically. **(N=250)**

Statement	Gender	N	Mean	Std. Deviation
I find myself using helpful learning strategies automatically.	Female	125	3.93	1.074
	Male	125	3.60	1.129

In this item 250 responded. Mean (3.93) and SD for female responded is (1.074) and mean and SD for male responded is (3.77) and (1.129)

Table 23: I find myself pausing regularly to check my comprehension**. (N=250)**

Statement	Gender	N	Mean	Std. Deviation
I find myself pausing regularly to check my comprehension.	Female	125	3.15	1.137
	Male	125	3.34	1.060

In this item 250 responded. Mean (3.15) and SD for female responded is (1.137) and mean and SD for male responded is (3.34) and (1.066)

Table 24: I try to translate new information into my own words**. (N=250)**

Statement	Gender	N	Mean	Std. Deviation
I try to translate new information into my own words**.**	Female	125	3.09	1.318
	Male	125	3.25	1.315

In this item 250 responded. Mean (3.09) and SD for female responded is (1.318) and mean and SD for male responded is (3.25) and (1.315)

Table 25: I change strategies when I fail to understand**. (N=250)**

Statement	Gender	N	Mean	Std. Deviation
I change strategies when I fail to understand.	Female	125	3.79	1.133
	Male	125	3.76	1.138

In this item 250 responded. Mean (3.79) and SD for female responded is (1.133) and mean and SD for male responded is (3.76) and (1.138)

Table 26: I ask myself questions about the material before I begin**. (N=250)**

Statement	Gender	N	Mean	Std. Deviation
I ask myself questions about the material before I begin**.**	Female	125	3.73	1.070
	Male	125	3.59	1.125

In this item 250 responded. Mean (3.73) and SD for female responded is (1.070) and mean and SD for male responded is (3.59) and (1.125)

4. Discussion

The purpose of the study was to determine the relationship between the cognitive abilities and academic performance of students enrolled in grade 6. A student's ability to use logic, or cognitive abilities, has a profound on academic success. Gender location, type of school, the parental status of education and occupation, annual income, and family type are all social factors that influence thinking ability and academic success. It was found that a strong and positive relationship between comprehension and academic performance of Grade 6 students r =.842. It was assumed if students' comprehensive skills developed, their academic performance improved significantly.

5. Conclusions

Research is designed to investigate skills acquisition and its relationship to academic success. Understanding helps to define and focus on the needs of each student effectively. The tests provide participants with additional academic achievement in learning important cognitive skills such as oral thinking, pointless thinking, and limited thinking. It is clear from the discovery that tests such as these help teachers and teachers to assess student flexibility, flexibility, visual acuity, and visual and

auditory skills. Further learning needs to be improved. Comprehension skills demonstrate learners' strengths, expose hidden skills, and point the way to new learning opportunities. Information will be provided to appoint competent and competent people. Good exposure and exposure to the topic will improve their Cognitive Skills. Thinking skills are closely related to learning and problem solving, both inside and outside the school. Measuring comprehension of three different content areas ensures that teachers get a balanced view of each student, expect student success and developing students' cognitive skills. However, Individual diversity in academic performance is linked to intellectual diversity. Students with high mental abilities are often more successful in academic contexts. If academic achievement and cognitive skills are interdependent and if cognitive development skills increase students' academic achievement, schools may be encouraged to offer psychological training.

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