

A STUDY ON RELATIONSHIP BETWEEN MENTAL ABILITY AND ACADEMIC ACHIEVEMENT OF STUDENTS

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ABSTRACT: Education has evolved into a very competitive and commercial enterprise. Academic achievement, or how well a student achieves requirements set by the local government and the school itself, is used to gauge success in educational institutions. And it is vital for children's growth to develop academic skills and cognitive talents. Academic achievement, often known as academic performance, is the extent to which an individual, instructor, or institution has met their educational objectives. Educational scholars and practitioners are motivated to discover elements that exhibit effectiveness in enhancing student accomplishment as the emphasis on measurements of student academic achievement grows. Intelligence disparities have been related to differences in academic performance. Students with stronger mental abilities are more likely to excel in school. Thus, in the present paper an attempt has been made to find out the relationship between mental ability and academic achievement of students. A sample of 150 standard students of different schools in Udaipur district was selected for the study. Stratified random sampling method was adopted for selecting the sample. Statistical analysis is done using one way ANOVA and test of homogeneity of variance to conclude that there exists a strong positive relationship between mental ability of students and their academic achievement. Also, there is a significance difference among various age groups of respondents towards their mental ability for academic achievements. Mental ability has been found significantly impacting academic performance of students. The research will assist teachers and parents to focus on this critical aspect of student's personality. **Key Words:** Mental Ability, Academic achievement, learning etc.

INTRODUCTION: Education is an extremely important instrument for success in today's environment. It is important since it is utilized to reduce the majority of life's obstacles. Education provides knowledge that opens doors to a plethora of options for bettering one's job prospects. The method by which a person develops numerous habits, information, attitudes, and experiences is known as learning. Education is an instrument that can be used for any type of learning. Learning science necessitates a higher level of creative and analytical thinking. Learning is the process of absorbing new or existing knowledge, skills, beliefs, or preferences, as well as synthesizing many sorts of information. Mental capacity is a measure of a person's brainpower in many areas of expertise. Mental ability, according to psychologists, refers to a person's capacity to learn and recall information, recognize ideas and their reactions, and adapt information to their own behavior. Scales that evaluate specific constructs such as linguistic, mechanical, numerical, social, and

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unique skills are included in general mental ability tests. Academic success is heavily influenced by mental capacity. Today's educational landscape includes a wide range of curriculum, approaches and methods, ideologies, and teaching-learning procedures that are always changing and developing. Today's schools exaggerate the winning mentality to the point of exaggeration, displaying extraordinary talent and performance. Cognition has long been connected to kids' reading and arithmetic achievement, according to research (Vanessa L. and Christian, 2008). Although cognitive capacity is a pretty strong predictor of academic accomplishment, it is still being studied and is thought to be a decisive factor in learning and academic success. Academic success is defined as an individual's attainment or acquired expertise in the performance of a talent or body of knowledge. Academic success is an important criterion for determining a person's full potential and skills. The term "achievement" refers to the degree or level of success achieved in certain school tasks, particularly academic performance. As an outcome, math achievement and general mental capacity can be characterized as the end result of all information understanding, comprehension, implementation, research, synthesis, and assessment.

In this competitive age, academic accomplishment is one of the most essential aims of school. Everyone wants their children to grow up to be physically and psychologically healthy, as well as academically successful. Academic success is influenced by a variety of factors, with mental health being one of the most essential. A healthy person is not only fit and healthy, but also mentally strong. It entails a sound, effective mind as well as well-managed emotions. Mental health is defined as one's ability to respond adequately to various stresses in the atmosphere, and it is now acknowledged as an important part of one's overall health. As per the National Institute of Mental Health, 20% of students may be suffering from untreated mental health issues that are interfering with their academic work. Social and emotional programs that are well-planned and implemented, on the other hand, can have a favourable impact on academic performance. Sound mental ability, which is a secret to success in all aspects of life, is one of the important variables determining educational products.

Meaning: An individual's mental ability is demonstrated by his or her intelligent behaviour. Individuals with typical intellectual abilities will be capable of seeing, comprehending, learning, reasoning, remembering, and efficiently dealing with events. Mental ability is the ability to learn and remember information; in law, it is the ability to comprehend the facts and the implications of your actions. Synonyms: capacity. Antonyms: incapacity, Lack of intellectual power. Academic achievement refers to the amount to which a person has met certain objectives that were the emphasis of activities in educational settings, such as school, college, and institution.

Literature Review:

The disparities in mental capacity and academic accomplishment of two different subgroups of high school students who were distinguished based on their expressed aspirations for higher education were explored in this study. The participants were 636 graduates from nine public comprehensive high schools in Portland, Oregon, who were chosen at random. The null form was used to express the hypothesis and sub-hypotheses. The t tests were used to determine significance testing at the.01 confidence level. The results showed that

there were substantial variations in the means of the two groups for all attributes except GPAs, and no huge differences in the dispersion of the scores except for the Stanford Reading Scores” (Gadzella&Bentall 1966). The study's main goal was to research and assess the connection between academic success and general mental ability, interests, and the family environment. Methods: A total of 110 kids from three Delhi KendryaVidyalayas took part in the event. Their ages ranged from 13 to 14, with the average being 13.6 years. In the chosen sample, two validated tools were utilized to elicit reactions from the participants: R. K. Tandon's (1972) General mental capacity test, S. K. Bawa's (1998) Multiphasic Attention Inventory, and K. S. Mishra's (1989) Home Environment Inventory. Their annual examination grades in class VII, on the other hand, were deemed academic success. Outcomes: At the 0.01 level of significance, four key hypotheses were generated and tested. The data was analysed using the Pearson-Moment Correlation Coefficient and the t-test. General Mental Ability, family environment interest, and academic accomplishment are all found to be significantly and positively connected in the study. Girls' high scores, on the other hand, suggest that they are better than guys.

RESEARCH METHODOLOGY:

Need and significance of this study: Educators have put forth a lot of effort into researching the impact of personal characteristics on student academic progress. By providing unequal possibilities for males and females, sex-related problems have largely contributed to the development of the gender crisis. Similarly, gender and family environment significant difference in academic success will provide educators of young adolescents with thought-provoking details on repercussions and particular guidance to take; a necessity for the parents to be revealed to parenting skills and their responsibilities forward into their kid's academics; and parents are able to promote and support their children's learning via the buy of learning resources.

Research Questions The following four research questions guided the study.

1. “What is the relationship between students’ General Mental Ability and their academic achievement”?
2. “What is the relationship between age and their academic achievement”?

Questions on the Mental Ability Test involved reasoning and problem solving of various degrees of complexity, which were graded by age. It relates to one's knowledge and understanding of oneself as well as one's relationships with others. Some subjects fail to transfer information to pupils in an academic setting, particularly with younger learners, simply because the students are uninterested and do not stay focused. Students' enthusiasm and attentiveness in academic courses might be boosted through Mental Ability Tests. The amount to which students engaged in the system succeed, whether in the cognitive or psychomotor domain, determines the efficiency of any educational system. In general, accomplishment refers to a student's scholastic or academic success at the conclusion of a program of study (Dev, 2016). This research is based on a study that looked into the "Influence of Stress on the Academic Success of Students at University Level in Bahawalpur, Pakistan," according to Nadeem, Maqbool, and Zaidi (2012). Because this was a descriptive study, the data was collected using a survey approach. Stratified sampling was used to pick 97 individuals from a total of 200 pupils for the sample size. “The researchers divided the students into three groups: all

students, male students, and female students. The questionnaire (Otis self-administering test of mental capability) and stress measuring scale were used as instruments for data collection in this study". In SPSS software, data analysis was done using the regression formula to assess the influence of stress on student academic accomplishments and the co-relation formula to see the association between stress and student academic successes. An in-depth examination of the conclusions gleaned from this examined data reveals that worry has an influence on pupils' academic progress. The findings demonstrate that when stress levels rise, both male and female pupils' academic success drop. In addition, the results show that stress has a greater influence on female students than on male students.

THE STUDY'S OBJECTIVE

Mental capacity testing is a scientific study of human cognition, which includes all of our mental capacities, such as perception, acquiring, remembering, analysing, reasoning, and comprehending. Cognitive psychology is the study of how students acquire and utilize knowledge or details (Lin Lu and Anne Doshier, 2007). Fostering positive student interactions can help them attain greater levels of academic success. The primary objective of this research is to conduct "a study on the connection between mental capability and student academic success." The study's findings would be extremely useful in determining students' relative strengths and weaknesses in terms of their abilities to absorb, retain, organize, and utilize information. The study's scope is restricted to state-run schools in Rajasthan's Udaipur area. **OBJECTIVES:**

1. To study the importance of mental ability in the academic life of students.
2. To find out "the significant difference in Mental Ability of Secondary School Students with respect to their age".

SAMPLE A sample of 150 standard students of different senior secondary schools in Udaipur district was selected for the study. Stratified random sampling method was adopted for selecting the sample. Variables; Researcher has selected following variables for evaluating the academic achievement of students after reviewing the literature;

- Numerical Ability Factor
- Serial Learning
- Problem Solving Ability Factor
- Spatial Factor
- Reasoning
- Word Fluency Factor

Analysis

Table 1:- Frequency table of Age

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	14-16	60	40.0	40.0	40.0
	17-18	74	49.3	49.3	89.3
	Above than 18	16	10.7	10.7	100.0
	Total	150	100.0	100.0	

Graph 1:- Frequency graph of Age

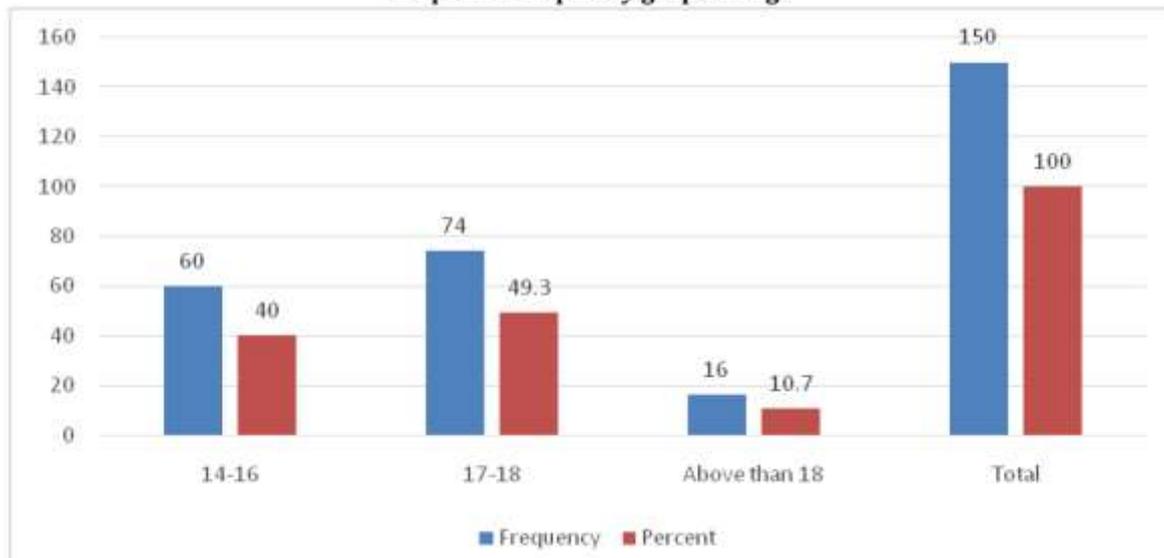


Table and graph given above display the results of the classification of age of respondents. The data reveals that 40% of students are from the age group of 14-16 years, 49% are from 17-18 years and only 11% are from greater than 18 years of age. Thus, most of the students are under 18.

Hypothesis

H0: "There is no significance difference among various age groups of respondents towards their mental ability for academic achievements".

H1: "There is a significance difference among various age groups of respondents towards their mental ability for academic achievements".

Table 2:- Table of Test of Homogeneity of Variances

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Numerical Ability Factor	4.388	2	147	.014
Serial Learning	8.757	2	147	.000
Problem Solving Ability Factor	8.863	2	147	.000
Spatial Factor	8.318	2	147	.060
Reasoning	1.775	2	147	.173
Word Fluency Factor	.349	2	147	.706

Above data display the results of the test of homogeneity of variance applied to test the hypothesis. The results from above table display that value of sig is less than 0 for variables Numerical Ability Factor, Serial

Learning and Problem-Solving Ability Factor. Thus, it can be stated that there is a significant difference among various age groups of respondents towards their mental ability for Numerical Ability Factor, Serial Learning and Problem-Solving Ability Factor. However, for variables Spatial Factor, Reasoning and Work Fluency factor the value of sig is greater than .05 and hence for all these “we accept the null hypothesis that there is a significant difference among various age groups of respondents towards their mental ability for Spatial Factor, Reasoning and Work Fluency factor”.

Table 3:- Table of ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Numerical Ability Factor	Between Groups	8.951	2	4.475	5.237	.006
	Within Groups	125.609	147	.854		
	Total	134.560	149			
Serial Learning	Between Groups	6.072	2	3.036	4.283	.016
	Within Groups	104.201	147	.709		
	Total	110.273	149			
Problem Solving Ability Factor	Between Groups	5.292	2	2.646	3.599	.030
	Within Groups	108.068	147	.735		
	Total	113.360	149			
Spatial Factor	Between Groups	4.082	2	2.041	2.789	.065
	Within Groups	107.578	147	.732		
	Total	111.660	149			
Reasoning	Between Groups	.625	2	.313	.394	.675
	Within Groups	116.715	147	.794		
	Total	117.340	149			
Word Fluency Factor	Between Groups	.293	2	.147	.181	.834
	Within Groups	118.967	147	.809		
	Total	119.260	149			

Above data display the results of the ANOVA test of variance applied to test the hypothesis. The results from above table confirm the results of test of homogeneity of variance applied earlier. The results here also display that value of sig is less than .05 for variables Numerical Ability Factor, Serial Learning and Problem-Solving Ability Factor. Thus, it can be stated that there is a significant difference among various age groups of respondents towards their mental ability for Numerical Ability Factor, Serial Learning and Problem-Solving Ability Factor. However, for variables Spatial Factor, Reasoning and Work Fluency factor the value of sig is greater than .05 and hence for all these “we accept the null hypothesis that there is a significant difference among various age groups of respondents towards their mental ability for Spatial Factor, Reasoning and Work Fluency factor”.

CONCLUSION:

According to a literature review, academic achievement has become a metric of self-worth and success. One of the main goals of IQ testing is to predict academic success. Previous studies have consistently demonstrated a link between mental skills as measured by various psychometric tests and academic achievement. In many topics, cognitive aptitude is the most essential determinant of academic success. The

present study was intended to find out the relationship between Mental Ability and Academic Achievement of secondary school students. From this study the investigator found that “there is a significant difference among various age groups of respondents towards their mental ability for Numerical Ability Factor, Serial Learning and Problem-Solving Ability Factor”.

EDUCATIONAL IMPLICATIONS:

- Since it is crucial for optimal learning, mental health is one of the most important educational goals. As a result, in order to improve educational outcomes, schools should pay attention to students' mental health.
- In the classroom, the teacher should provide a good educational and welcoming environment in which students can openly address their questions without fear of being judged.
- To safeguard the kid from mental illness or behavioural difficulties, the teacher must provide appropriate supervision and counselling. In order to provide the required assistance to children, a mental health service should be available in the school.
- Co-curricular activities should be a part of the curriculum to help children release their pent-up emotions and channel their harmful energy in a positive way.
- In the classroom, ‘free discipline’ should be maintained. In school, there should be no excessive restrictions.
- A school-based social and emotional education program has been demonstrated to boost children's achievement test scores.

THE STUDY'S LIMITATIONS AND DELIMITATIONS:

The survey study seems to have its own restrictions and delimitations in general. It is the investigator's job to conduct the research study with the utmost care for the benefit of teachers, parents, and students.

Delimitations • The current study is limited to a few schools in Rajasthan's Udaipur area.

- Only students in sixth grade were selected for the study.
- The research was conducted at schools that were linked with the State Board rather than other boards such as CBSE, ICSE, and IGCSE.
- Due to practical constraints, only 150 students were chosen for the study's sample.

Limitations: To make the study meticulous and successful, great care and effort were put in. Despite the restrictions, the investigator has taken great care to conduct the study in a reliable and objective manner. The findings of this study are expected to aid educators and students in recognizing the innate abilities that they have learned.

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