

Relationship between Academic Achievement and Successful Intelligence of Adolescents

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ABSTRACT

This study was conducted to find the relationship between academic achievement and successful intelligence of adolescents. Academic Achievement of adolescents was also studied in relation to dimensions of successful intelligence- analytical intelligence, practical intelligence and creative intelligence. Descriptive method was used in this study. The study was conducted on a sample of 800 students of +1 class taken randomly from schools of Jalandhar and Kapurthala affiliated to Punjab School Education Board, Mohali. Scores of students in annual exams of matric were taken as the mark of their academic achievement. Successful Intelligence scale was constructed and standardised by the investigator. The analysis of data was done by using Product moment correlation. Mean, standard deviation, coefficient of skewness and coefficient of kurtosis were also calculated to know the nature of the data. The results of the study are that there exists a positive, low but highly significant relationship between academic achievement and analytical intelligence of students. There exists a positive, low but significant relationship between academic achievement and practical intelligence of adolescents. There exists a positive, low but significant relationship between academic achievement and creative intelligence of adolescents. There exists a positive, low but significant relationship between academic achievement and successful intelligence of adolescents. The results indicate that efforts should be directed to develop analytical intelligence, practical intelligence, creative intelligence which all together will lead to the development of successful intelligence that will result in enhancing academic achievement of adolescents.

Keywords: Academic achievement, successful intelligence, analytical intelligence, practical intelligence, creative intelligence

Major aim of education is to enable each child to make the most of his abilities. In today's competitive world, the educational status of an individual is highly depicted through the academic achievement. It acts as a key criterion to judge student's true potentials and capabilities (Daulta, 2008; Nuthana, 2007). But more and more educators have recognised that many children including the gifted ones fail to live up their potential. There can be a number of reasons that can be pinpointed for this failure, one of which is the way in which the students are taught and, often, assessed in school; does not enable them to learn and perform to the optimal level. Hence, today the main objective in our mind while educating the students is to bring

success throughout their life career by developing in them multi-faceted skills and competencies. An urgent need is felt to view intelligence as multidimensional and a comprehensive concept, and to develop abilities of cognitive, emotional, social and practical content. Among various meanings and interpretations of intelligence as put forth by a number of psychologists, the idea of Sternberg's Successful Intelligence is quite wide and appropriate in today's scenario. Successful Intelligence nurtures a blend of analytical, practical and creative abilities (Sternberg, 1997a, 1999) and it is the fairplay of all these skills in life that brings success (Sternberg and Grigorenko, 2000 a). These triarchic abilities (analytical, practical and creative)

can be assessed and can be improved if students are taught in such a way that all the three abilities are put into use. High triarchic abilities assure high degree of academic achievement and success in life.

Academic Achievement

The term Academics has been derived from the word 'Academy' which means a school, therefore academic achievement explains the academic achievement of a student in a school or educational institutions which can be assessed in number of ways such as CGPA, Percentage of marks in exams, performance on tests etc. Random Home Webster's college Thesaurus (1997) explained academic achievement as those qualities or attributes or characteristics or traits of an individual which contribute to or have a direct bearing or effect or influence on the accomplishment or proficiency of performance pertaining to any activity scholastic in nature or any scholarly activity. Oxford advanced learner's Dictionary (2000) has defined it as a thing that somebody has done successfully; especially using his/her own effort and skill. In more comprehensive words, academic achievement is reflected by the extent to which knowledge has been acquired by a person from the training imparted to him; it is the outcome of general and specific learning experience. The ultimate aim of all formal education is academic achievement. The success or failure of a student is judged in terms of academic achievement.

Academic achievement is a phenomenon which is affected by numerous cognitive factors like intelligence, creativity and language ability; non-cognitive factors like motivation, level of aspiration, aptitude, interest etc.; home environmental factors like family background, socio economic status of parents etc.; social environmental factors like curriculum, methods of teaching, role of teachers, emotional climate of school etc. All these factors play a decisive role in the academic achievement of students which under these influences can be high, low or average. Krishna Reddy (2009) has concluded that the students who are more intelligent, have better control over their emotions, are more obedient, love to do new ventures, strong minded and adjusting. They have high scholastic achievement than those who are less intelligent, emotionally weaker, reserved and indisciplined. The importance of scholastic and academic achievement

has raised important questions for educational researchers. It has become imperative for educators and parents to understand the interaction of the various aspects contributing to adolescents' academic achievement.

Successful Intelligence

Sternberg's (2000) conceptualisation of Successful Intelligence is comparatively new notion of intelligence. It is concerned with an individual's ability to succeed in life. Specifically, Sternberg (2003) has defined Successful Intelligence as the ability to succeed in life by capitalising on one's strengths and compensating for one's weaknesses, to adapt, to shape, and select environments using analytical, creative, and practical abilities according to one's personal standards and within one's socio-cultural context.

Theory of Successful Intelligence developed by Sternberg is also called Triarchic Theory of Intelligence (1985), according to which Intelligence is a balance between analytical, creative, and practical abilities.

Sternberg (2005), opines that the theory of Successful intelligence is comprised of three parts: a contextual part that emphasizes the role of intelligence in successful adaptation to the environment; a componential part that specifies different mental mechanisms and processes which are inherent in intelligent behavior; and an experiential part which explains that intelligence is best manifested in occasions in which the task or situation requires the application of these processes.

Components of Successful Intelligence

Sternberg's theory of Successful Intelligence divides intelligence into three components which work together, namely: Analytical or Componential, Practical or Contextual and Creative or Experiential.

These components are briefly explained here:-frm intro:

1. Analytical or componential intelligence refers to the higher order mental processes involved in problem solving. In brief, analytical ability is required in the process of analyzing, evaluating, criticizing, reasoning, and judging etc. People who have high analytical intelligence are seen excelling on standard

tests of academic potential (Sternberg and Rainbow Project Collaborators, 2006).

2. Practical Intelligence allows determining the best way to reach the goal and is used in accomplishment. Thus, practical ability is needed in adapting and shaping the changing environment. It makes an individual more adaptive and street smart (Sternberg and Rainbow collaborators, 2006). Baum, Bird and Singh (2011), pointed out that those with high practical ability tend to develop useful knowledge by doing and learning, not by observing or reading, because it is the outcome of carrying out investigations and hands on experience which leads to specific learning. Practical intelligence shares remarkable similarities with social and emotional intelligence with some subtle distinctions.
3. Creative Intelligence is put into use while discovering, dealing with innovation, and with new situations using experiences and current skills. It is linked with generating new ideas that are useful. Success in life requires one not only to analyze one's own ideas as well as the ideas of others, but also to generate ideas (Sternberg, 2005). Sternberg (2003), is of the opinion that "It is very important to know how and when to use these aspects than just have them" .when all the three (analytical, creative and practical) aspects of intelligence are balanced it is most effective.

Theory of successful intelligence predicts that people who possess triarchic abilities (analytical, practical and creative) will be able to make the maximum use of their strengths and compensate their weaknesses.

REVIEW OF RELATED LITERATURE

Sternberg and Clinkenbeard (1995) explored the question of whether conventional education in school systematically discriminates against children with creative and practical strengths. It was observed that the systems in most schools strongly tend to favor children with strengths in memory and analytical abilities.

Sternberg (1998) examined learning of social studies and science by third graders and eighth graders. 225

third graders were students in a very low income from neighbourhood in Raleigh, North Carolina and 142 eighth graders were students who were largely middle to upper middle class studying in Baltimore, Maryland, and Fresno, California. In this study, students were assigned to one of three instructional conditions. In the first condition, they were taught the course with no intervention. The emphasis in the course was on memory. In a second condition, students were taught in a way that emphasized critical (analytical) thinking. In the third condition, they were taught in a way that emphasized analytical, creative, and practical thinking. All students' performance was assessed for memory learning (through multiple-choice assessments) as well as for analytical, creative, and practical learning (through performance assessments). As expected, students in the successful-intelligence (analytical, creative, and practical) condition outperformed the other students in terms of the performance assessments.

Sternberg, Forsythe., Hedlund, Wagner, Williams, Grigorenko and Williams (2000) in their research study found that Creative skills can be taught. The investigators divided eighty-six gifted and non gifted fourth grade children into experimental and control groups. All children took pre-tests on insightful thinking. Some of the children received their regular school instruction whereas others received instruction on insight skills. After their particular instruction, all children took a post-test on insight skills. The investigators found that those children who were taught how to solve the insight problems using knowledge acquisition components gained more from pre-test to post-test than did students who were not so taught.

Sternberg , Grigorenko and Bridglall (2001) did study on children in Kenyan villages and found that they possess better practical knowledge regarding how to use natural herbal medicines for combating parasitic and other illnesses than their school achievement in English and Mathematics. The better students were on the practical tests, the worse they were on the academic tests, and vice versa.

Sternberg and The Rainbow Project Collaborators (2006) Data were collected at 15 schools across the United States, including 8 four-year colleges, 5 community colleges, and 2 high schools. The Rainbow measures are designed to assess analytical,

creative, and practical abilities along the lines specified by the theory of successful intelligence. The instruments consisted of both multiple-choice tests (the Sternberg Triarchic Abilities Test, STAT) and performance measures of creative and practical skills. School performance was measured using cumulative GPA as obtained from college transcripts, that is, this measure was GPA assessed at the end of the year. The study cited a strong evidence that the measures of analytical, practical, and creative intelligence do predict college grade.

Yaghoob, Hossein and Maral (2014) investigated the relationship between students' creativity and academic achievement. The sample size comprised 72 subjects and data was collected from the student questionnaire and Torrens creativity test. Information gleaned from questionnaires and test were analyzed by using both descriptive and inferential statistics. The results revealed the positive significant relationship between academic achievement and creativity.

Mehdi and Torbat (2015) Conducted a study to explore the relationship between creative thinking and academic achievement. This descriptive - correlation study was performed on 156 male and female students. Data was collected using Bradberry - Greaves' questionnaire of emotional intelligence and Abedi's questionnaire of creative thinking. The mean scores of students were used as an index of academic achievement. Data were analyzed by descriptive statistics, independent t-test, Pearson correlation coefficient and multiple regressions using Spss20 software. The results show that the relationship between creative thinking and academic achievement was positive and significant.

Significance of study

Academic achievement is the most significant determinant of students' success in their lives. It enriches them with the qualities of head and heart. Academic success helps students to have high self regard, have lower levels of hopelessness and worry. It is regarded as the end product of all the educational endeavour. The students with the academic success would have more opportunities to choose their future jobs than those with less education.

We can see individual differences on the part of learners in their level of achievement. It has

always been a subject of interest for psychologists and educators that why students achieve or fail to achieve in school (Naylor, 1972). It is a mind boggling question that which factors bring variation in their achievement. Earlier it was believed that a person who is strong in memory and analytical abilities has high academic achievement (Carroll, 1993 and Cattell, 1971).

The research shows that conventional conceptions of intelligence may be too narrow. Very interesting as well as significant views are expressed by Sternberg in his theory of Successful Intelligence that triarchically (analytical, creative and practical abilities) taught students outperformed students who were taught primarily for memory or for critical thinking (Sternberg, Torff and Grigorenko, 1998).

Intelligence independently does not predict the career outcome of the academic achievement. Practical, creative and analytical abilities as measured by Sternberg Triarchic Abilities Test (Sternberg, 1993) contribute to the prediction of academic achievement (Sternberg, Forsythe, Hedlund, Horvat, Wagner, Williams, Snook, Grigorenko, 2000). While the study by Soares; Francischetto; Peçanha; Miranda and Dutra (2013) speculated the influence of intelligence and the main results achieved presented no significant correlations between intelligence and academic adaptation.

The present study aims at finding the relationship between academic achievement and successful intelligence of adolescents in order to find the development of a set of abilities (analytical, creative and practical) which are the prerequisites to attain success in life.

Objectives of the study

1. To study the relationship between academic achievement and dimensions of successful intelligence i.e. analytical, creative and practical intelligence of adolescents.
2. To study the relationship between academic achievement and successful intelligence of adolescents.

Hypotheses of the study

1. There will be no significant relationship between academic achievement and

dimensions of successful intelligence i.e. analytical, creative and practical intelligence of adolescents.

1. There will be no significant relationship between academic achievement and successful intelligence of adolescents.

Research method

The nature of problem undertaken and the kind of data required for the purpose of study lead to the selection of the research method. In the present study descriptive survey method was used.

Sample

The sampling frame of the present study was the +1 class students of secondary schools of Jalandhar and Kapurthala districts affiliated to Punjab School Education Board. The complete sample comprised 800 students of +1 class of secondary students (boys and girls) taken from urban and rural, government and private schools affiliated to Punjab School Education Board. Stratified Random Sampling technique was adopted to form the sample.

Tools

- Scores of students in annual exams of matric were taken as the mark of their academic achievement.
- Successful Intelligence Scale constructed and standardized by the investigator.

Analysis of data and interpretation

Product –moment correlation was used to analyse the data. Further mean, standard deviation, coefficient of skewness and coefficient of kurtosis were also calculated to know the nature of the data.

Table 1: Correlation Coefficients between Academic Achievement and Dimensions of Successful Intelligence (analytical, practical and creative intelligence). (N=800)

Variable	Analytical Intelligence	Practical Intelligence	Creative Intelligence
Academic Achievement	0.30**	0.16**	0.22**

* Significant at 0.05 level of significance ** Significant at 0.01 level of significance

Interpretation

1. Table 1 indicates that, correlation coefficient between academic achievement and analytical intelligence is 0.30. This correlation is positive, low but highly significant at 0.01 level of significance. It shows that there exists a positive, low but significant relationship between academic achievement and analytical intelligence dimension of successful intelligence.
2. Table 1 indicates that, correlation coefficient between academic achievement and practical intelligence is 0.16. This correlation is positive, low but highly significant at 0.01 level of significance. It shows that there exists a positive, low but significant relationship between academic achievement and practical intelligence dimension of successful intelligence.
3. Table 1 indicates that, correlation coefficient between academic achievement and creative intelligence is 0.22. This correlation is positive, low but highly significant at 0.01 level of significance. It shows that there exists a positive, low but significant relationship between academic achievement and creative intelligence dimension of successful intelligence.

Table 2 shows the correlation coefficients between academic achievement and successful intelligence

Table 2: Correlation Coefficients between Academic Achievement and Successful Intelligence (N=800)

Variable	r	Significance level
Academic Achievement Vs Successful Intelligence	0.30**	p < 0.01

Interpretation

1. Table 2 indicates that correlation coefficient between academic achievement and successful intelligence is 0.33. This correlation is positive, low but highly significant at 0.01 level of significance. It shows that there exists a positive, low but significant relationship between academic achievement and successful intelligence.

Thus, successful intelligence and its dimensions viz., analytical intelligence, practical intelligence, creative

intelligence have positive, low but significant correlation with academic achievement. Hence, the hypothesis that there will be no significant relationship of academic achievement and successful intelligence and its dimensions cannot be accepted.

Discussion of result

- The results reflected positive and significant relationship between academic achievement and analytical intelligence. This implies that such techniques and methods should be adopted by teachers in schools that encourage thinking skills and memory. Teachers should create such an environment in the class that students feel free to express their views. They should be motivated to do critical analysis of any character of story, process of science, design of experiment, solution of any mathematical problem etc. The ability to see the strengths and weaknesses, to find similarities and differences, to assess success and failure will develop analytical intelligence. For the inculcation of all these skills children should be encouraged to analyze, judge, compare and contrast, evaluate and assess the things, procedure and situation. Such skills are required to perform well in academics and in other tasks of similar nature.
- The results of the study have also shown a positive and significant relationship between academic achievement and practical intelligence. High practical intelligence will lead to high academic achievement. And to develop good level of practical intelligence, children should be encouraged to use the knowledge gained in the classroom. Teaching and learning should be life oriented. Classroom lessons should not create a gap between real life and book learning. Teaching must be related to the real practical needs of the students. To develop practical intelligence among adolescents, they should be asked to apply their learning in real life settings. The more they use their knowledge the more they gain practical insight. Lessons learned from books should find an implementation in field, workshop, laboratory, playground etc. Maximum opportunities should be given to work in simulated settings which would provide hands on experience and more practical wisdom.

- Positive and significant relationship between academic achievement and creative intelligence implies the important role played by creative skills in achieving high academic achievement. To develop creative ability among children, teachers should not only support and encourage creativity but they should role model it and reward it when it is displayed. In other words teachers need not only talk the talk but also walk the walk. For this they should encourage the students to create, invent and discover new stories, processes and situations. Their power of imagination should be given a free flight and should find a form and shape under the guidance of a teacher. Creative form of assessment will also be helpful in developing creative skills among children.
- Positive and significant relationship between academic achievement and successful intelligence implies that children with high successful intelligence will have high academic achievement. It reflects that all the three abilities (analytical, practical and creative) which together form successful intelligence need to be developed in a balanced way. Teaching and assessment should balance the use of analytical, practical and creative thinking. Creative abilities need to be developed to generate new ideas, analytical abilities to determine whether they are good ideas and practical abilities to implement the ideas and to convince others of their value. Helping students to capitalize on their strengths and at the same time, to correct or compensate for weaknesses will lead them to achieve success. Multiple types of, teaching methodology and assessment will be fruitful for all the students. Maximum use of teaching aids, illustrations, demonstration, participation are some of the ways that will be helpful in leading the students to understand, select, shape, adept and change the environment which is the most important skill to achieve success in life.

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