



A STUDY OF ACADEMIC ACHIEVEMENT IN SCIENCE OF SECONDARY SCHOOL STUDENTS WITH CRITICAL THINKING AND EMOTIONAL INTELLIGENCE

Education

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ABSTRACT

Academic achievement is considered as a key factor for personal progress. The whole system of education revolves around academic achievement. The main objective of the present study is to study the influence of critical thinking and emotional intelligence on the academic achievement in science of secondary school students. The annual examination marks in science of IX standard students from the records of the schools were taken as the indices of academic achievement in science. A sample of 320 Secondary school students representing different management and locality in Chittoor District is taken for the data analysis following stratified sampling technique. 'F' test was employed for analysis of the data. There is significant influence of critical thinking and emotional intelligence at 0.01 level of significance on the academic achievement in science of secondary school students.

KEYWORDS

Academic Achievement, Science, Critical Thinking, Emotional Intelligence and Secondary school students.

INTRODUCTION

Academic achievement is the combination of ability and effort. Presumable ability being equal, those higher motivations, expertness and more effort will achieve higher grade. The need for achievement is a learned motive to compete and to strive for success. There are wide differences among individuals, their past experiences and in their motivation that is learned, which account for the need for achievement. The academic achievement represents the outcome of a complex variety of factors and cannot be traced to the existence of only one personal attribute. Academic achievement, as currently is used a fuzzy term that may mean any one of a dozen unspecified things. The sum total of information a student has at his command, when he finishes a course of instructions, the getting of a passing grade in a course regardless of what may lie behind the grade or the score on a test that has 'performance' in its title.

Academic achievement is of paramount importance, particularly, in the present socio-economic and cultural contexts. Obviously in the school/college level, great emphasis is placed on the academic achievement, right from the beginning of formal education. The school performs the function of selection and differentiation among pupils on the basis of their academic achievement and other attainments, which open out avenues for advancement in life. It is the performance of the students in achieving mathematical knowledge, developing numerical ability, numerical reasoning, problem solving, positive mathematical attitude and applying these in different mathematical activities. The achievement of the students in mathematics is not common in all. It is different due to individual differences. It is measured or assessed through different teacher made standardised tests.

The central aim of all formal educational efforts is academic achievement on the part of the students. Even though, it is desirable to have all-round development, as the goal of educational process, where academic achievement would be just one of the dimensions; but in most of the educational institutions, academic achievement continues to be the exclusive concern, narrowing down the very concept of educational process. Nevertheless, it is important to note that academic achievement in curricular subjects is not an independent phenomenon; rather it is influenced by a number of factors, some of which are personal to the individual, while many others are located in the environment, in which learning takes place.

Review Of Literature

Davis Seaver Jane (1994) and **Corlos and Rodrgvez (2009)** reported that critical thinking of individuals do have significant difference on academic achievement.

Panchanadhan (1999), **Subramanyam, K and Sreenivasa Rao, K (2008)**, **Viswanath, K and Viswanatha Reddy, S (2017)**, **Kalaivani, S (2018)** and **Jasraj Kaur and Sandeep Kaur (2018)** reported that emotional intelligence of individuals do have significant difference on

achievement.

Objective of the Study:

To study the impact of critical thinking and emotional intelligence on the academic achievement in science of secondary school students.

Hypotheses of the study

- There would be no significant difference of 'critical thinking' on the academic achievement in science of secondary school students.
- There would be no significant difference of 'emotional intelligence' on the academic achievement in science of secondary school students.

Tools for the Study

Academic achievement in science of secondary school students, the annual examination marks of IX standard students in sciences from the records of the secondary schools were taken as the indices of the academic achievement for the study. Personal data regarding the student – 1. Name, 2. Critical Thinking, 3. Emotional intelligence.

Murthy Critical Thinking Scale: To measure the critical thinking of the students, the Murthy Critical Thinking Scale is standardized by **Venkatesha Murthy, C. G (2015)** was adopted. **Emotional intelligence scale:** To measure the emotional intelligence of the students, the Emotional intelligence scale is standardized by **Anukool Hyde, Sanjyot Pathe and Upinder Dhar (2011)** was adopted.

DATA COLLECTION

The sample for the investigation consisted of 320 Secondary school students in Chittoor district. The stratified random sampling technique was applied in two stages. The first stage is management i.e. Government and Private and second stage is locality i.e. rural and urban. It is a 2X2 factorial design with 320 sample subjects. The investigator personally visited schools with the permission of the headmasters of the schools. The Secondary school students who attended to the school on the day of collection of data are considered for the purpose of the study. The annual examination marks of IX standard students in science were taken as the indices of the academic achievement in science of the students from the records of the schools. The Murthy Critical thinking scale and Emotional Intelligence scale were administered for the present study. The data on each variable in the study is properly coded to suit for computer analysis. The analysis was carried out on the basis of objectives of the study and hypotheses formulated by employing appropriate statistical techniques. The inferential statistical technique 'F' test was employed to test hypotheses.

RESULTS AND DISCUSSION

1. Critical thinking

In the present investigation, the Critical thinking scores are divided

into nine groups on the basis of divisions given by the author. The secondary school students' Critical thinking as Very Poor Critical Thinker represents the score 1, secondary school students' Critical thinking as Poor Critical Thinker represents the score 2, secondary school students' Critical thinking as Good Analyzer & Poor Synthesizer represents the score 3, secondary school students' Critical thinking as Impulsive & Risk Taking type Thinker represents the score 4, secondary school students' Critical thinking as Dwarf Thinker represents the score 5, secondary school students' Critical thinking as Good Analyzer & Mediocre Synthesizer represents the score 6, secondary school students' Critical thinking as Quick Thinker represents the score 7, secondary school students' Critical thinking as Matured Thinker represents the score 8 and secondary school students' Critical thinking as Very Good Critical Thinker represents the score 9. The influence of 'Critical thinking' on the Academic achievement in science of secondary school students is investigated. The corresponding Academic achievement in science scores of nine groups are analysed accordingly. The influence of 'critical thinking' on the Academic achievement in science is investigated through one – way ANOVA technique. The following hypothesis is framed.

Hypothesis – 1

There would be no significant impact of 'critical thinking' on the Academic achievement in science of secondary school students. The above hypothesis is tested by employing one – way ANOVA technique. The results are presented in **Table – 1**.

Table – 1: Influence of critical thinking on the Academic achievement in science of secondary school students

S. No.	Critical thinking	N	Mean	SD	F – Value
1.	Very Poor Critical Thinker	16	51.15	12.06	4.523**
2.	Poor Critical Thinker	29	60.49	19.42	
3.	Good Analyzer & Poor Synthesizer	38	61.44	17.21	
4.	Impulsive & Risk Taking type Thinker	47	65.23	16.35	
5.	Dwarf Thinker	62	66.34	17.57	
6.	Good Analyzer & Mediocre Synthesizer	49	67.18	18.69	
7.	Quick Thinker	39	68.79	19.34	
8.	Matured Thinker	27	69.57	18.59	
9.	Very Good Critical Thinker	13	72.45	19.86	

Indicates significant at 0.01 level

The table value of 'F' for 8 and 311 df at 0.01 level is 2.57 and at 0.05 level is 1.97.

It is clear from the **Table – 1** that the computed value of 'F' for Academic achievement in science (4.523) is greater than the critical value of 'F' (2.57) for 8 and 311 df at 0.01 level. Hence the **Hypothesis – 1 is rejected** for the variable 'Critical thinking' at 0.01 level of significance. It is concluded that 'Critical thinking' has significant influence on the Academic achievement in science of secondary school students.

The Critical thinking of secondary school students differs significantly in Academic achievement in science. It is observed that Very Good Critical Thinker group secondary school students have significantly better Academic achievement in science than other categories of Critical thinking group secondary school students.

1. Emotional intelligence

In the present investigation, the Emotional intelligence scores are divided into three groups on the basis of quartiles. The secondary school students' Emotional intelligence as Low (Group – I) represents the scores up to Q_1 , secondary school students' Emotional intelligence as moderate (Group – II) represents the scores above Q_1 and up to Q_3 and the secondary school students' Emotional intelligence as high (Group – III) represents the scores above Q_3 . The influence of 'Emotional intelligence' on the Academic achievement in science of secondary school students is investigated. The corresponding Academic achievement in science scores of three groups are analysed accordingly. The influence of 'emotional intelligence' on the Academic achievement in science is investigated through one – way ANOVA technique. The following hypothesis is framed.

Hypothesis – 2

There would be no significant impact of 'emotional intelligence' on the Academic achievement in science of secondary school students. The above hypothesis is tested by employing one – way ANOVA technique.

The results are presented in **Table – 2**.

Table – 2: Influence of emotional intelligence on the Academic achievement in science of secondary school students

S. No.	Emotional intelligence	N	Mean	SD	F – Value
1.	Low	86	61.32	19.54	5.326**
2.	Moderate	142	66.55	17.92	
3.	High	92	69.77	17.43	

Indicates significant at 0.01 level

The table value of 'F' for 2 and 317 df at 0.01 level is 4.68 and at 0.05 level is 3.03.

It is clear from the **Table – 2** that the computed value of 'F' for Academic achievement in science (5.326) is greater than the critical value of 'F' (4.68) for 2 and 317 df at 0.01 level. Hence the **Hypothesis – 2 is rejected** for the variable 'Emotional intelligence' at 0.01 level of significance. It is concluded that 'Emotional intelligence' has significant influence on the Academic achievement in science of secondary school students.

The Emotional intelligence of secondary school students differs significantly in Academic achievement in science. It is observed that high Emotional intelligence group secondary school students have significantly better Academic achievement in science than low Emotional intelligence group secondary school students.

CONCLUSIONS:

In the light of the findings, the following conclusions are drawn. Critical Thinking and Emotional Intelligence have significant influence on the academic achievement in science of secondary school students.

Educational Implications

The findings of the present research have raised some important questions related to the educational needs of the students with special reference to their academic achievement in science of secondary school students.

1. Critical thinking has influence on the academic achievement in science of Secondary school students. Very Good Critical Thinker group secondary school students have significantly better Academic achievement in science than other categories of Critical thinking group secondary school students. Administrators should take necessary steps to establish facilities for enhancing critical thinking both process and product at schools as well as intellectual infrastructure. Heads of the secondary schools must take initiative steps to improve their critical thinking. Parents must involve in monitoring their children while learning with frequent visits with the teachers to find updates of the children critical thinking besides that they have to contribute monitors matters.
2. Emotional intelligence has influence on the academic achievement in science of Secondary school students. It is observed that high Emotional intelligence group secondary school students have significantly better Academic achievement in science than low Emotional intelligence group secondary school students. Administrators should take necessary steps to establish facilities for balancing of emotional intelligence at schools as well as intellectual infrastructure. Heads of the secondary schools must take initiative steps to improve their balancing of emotional intelligence. The parents who belong to interior area are normally lacking behind competencies in comparing with exterior area so they have to utilize the possible sources for balancing of emotional intelligence.

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