



## **ACADEMIC ACHIEVEMENT OF SECONDARY SCHOOL STUDENTS IN RELATION TO METACOGNITIVE ABILITY AND SOCIO-ECONOMIC STATUS**

**Paramjit Singh<sup>1</sup> & Sukhwinder Singh<sup>2</sup>**

<sup>1</sup>Assistant Professor, Khalsa college of education, Ranjit avenue, Amritsar

<sup>2</sup>M.Ed Student, Khalsa college of education, Ranjit avenue, Amritsar

### **Abstract**

*Education helps the people to become more knowledgeable about the world, more sensitive and understanding of their relationship to it, and more eager to contribute to the civilising process. Besides other factors, socio-economic status is one of the most researched and debated factor among educational professionals that contribute towards the academic performance of students. Along with this, another important factor which influences the academic achievement is the metacognitive ability of students. The present study was undertaken to study academic achievement of secondary school students in relation to metacognitive ability and socio-economic status. A sample of 200 students was selected from 10+1 commerce grade from different schools of Amritsar district by using random sampling technique. The data was collected by using Metacognitive Ability Inventory (Govil, 2011), Socio-Economic Status (Upadhyay & Saxena, 2008) and marks of students in 10<sup>th</sup> grade were taken as their academic achievement. A significant difference was found in the mean score of Academic Achievement, Metacognitive Ability and Socio-Economic Status with respect to gender wherein girls scored high on these variables than their counterparts. Also, a positive and significant relationship was found between Academic Achievement with Metacognitive ability as well as Socio-Economic Status of secondary school students. The results were used to suggest ways for improving academic achievement by using metacognitive ability.*



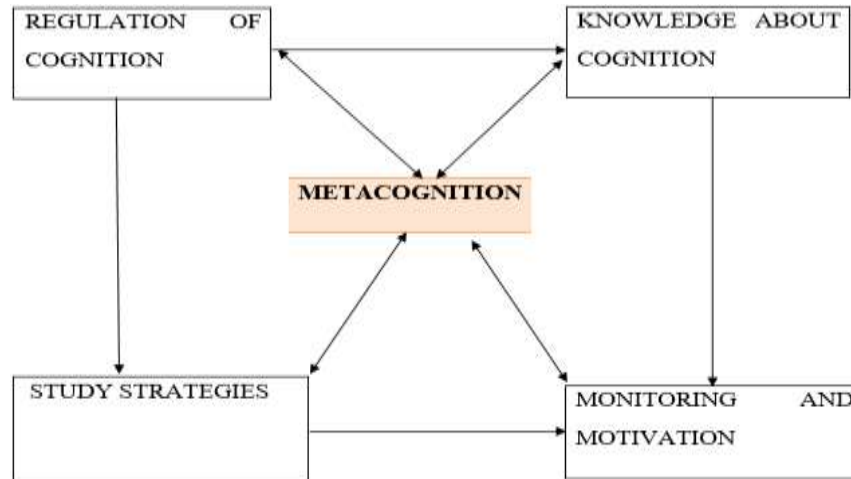
*Scholarly Research Journal's* is licensed Based on a work at [www.srjis.com](http://www.srjis.com)

### **Introduction**

Education is the most important invention by man. Education makes a person rational, capable and responsible. Academic success or failure is the most important concern in each education system.

There are number of factors which affects the academic achievement. One of factors with direct relation to the academic achievement is cognitive and metacognitive skills. Meta cognitive skills play an important role in a variety of cognitive activities including verbal information exchange, verbal persuasion, understanding and comprehension, reading, writing, attention, perception, memory, language learning, problem – solving, social cognition, and various forms of self – learning and self – control.

Metacognitive ability refers to higher order thinking which involves active control over the cognitive processes engaged in learning. Metacognitive abilities are classified on the basis of its four dimensions which are depicted in the following flowchart:



Children with high or who applies metacognitive ability learn more rapidly and learn more difficult material as that when they are placed with children of lower ability in the same room and with the same teacher. Another important factor which greatly influences the Academic Achievement of the individual is socio- economic status of individual.

### Emergence of the study

The need of hour is to nurture creativity, encourage innovativeness and develop entrepreneurship skills among the commerce students. Voice of new generation is to make them able to use their day to day experiences and richness of their ideas in new learning situations. Along with that to provide opportunities for taking initiatives, thinking fresh, asking questions, rising doubts, evaluating and judging within and outside the classroom for students growing up in today's society where knowledge is infinite. These are the important skills of the Metacognitive Ability which need to be inculcated in the commerce students for better academic achievement.

So, the present study was taken with a view to find out the significant potential role of metacognitive ability and Socio- economic Status of commerce students in achieving their desired academic results and also to suggest ways and means could be taken for improving the performance through metacognition strategies.

### Hypotheses of the study

1. There exists no significant difference in Academic Achievement of secondary school boys and girls.

2. There exists no significant difference in the Metacognitive ability of secondary school boys and girls.
3. There exists no significant difference in the Socio-Economic Status of secondary school boys and girls.
4. There exists no significant relationship between Academic Achievement and Metacognitive ability of secondary school students.
5. There exists no significant relationship between Academic Achievement and Socio-Economic Status of secondary school students.

**Research design of the study**

In the view of the approach followed the present study falls in the domain of descriptive research completed with correlation approach.

**Selection of sample**

Data was collected from randomly selected sample of 200 students studying in 10+1 commerce stream of different schools of Amritsar district.

**Tools used**

1. Metacognition inventory Revised (MCI) (Govil, 2011)
2. Socio- Economic Status (SES) (Upadhyay and Saxena,2008)

**Analysis of Data**

**Hypothesis 1-**

**“There exists no significant difference in Academic Achievement of secondary school boys and girls”.**

In order to test this hypothesis, mean and S.D of Academic achievement among girls and boys of secondary schools belonging to 10+1commercestream was calculated. The scores of girls and boys have been described in terms of mean, S.D and t-value in the table (1).

**Table 1**

**Mean, S.D and t-value of girls (100) and boys (100) of secondary schools belonging to 10+1 commerce stream on Different variable.**

Variable	Gender	Mean	S.D.	SE <sub>D</sub>	t-value
<b>Academic achievement</b>	Boys	63.93	5.039	0.761	5.03
	Girls	67.75	5.699		
<b>Meta cognitive</b>	Boys	90.17	13.874	1.795	2.91

<b>abilities</b>	Girls	94.10	11.388		
<b>Socio-economic status</b>	Boys	52.26	8.861	1.147	4.77
	Girls	57.73	7.283		

(Critical value 1.96 at 0.05 level and 2.58 at 0.01 level, df = 198)

The table 1 reveals that the mean score and S.D of boys is 63.93 and 5.04 respectively and mean score and S.D of girls is 67.75 and 5.699 respectively. The t-value comes out to be 5.028 which is significant at both 0.01 and 0.05 level of significance. Hence, the hypothesis no.1, "There exists no significant difference in metacognition among girls and boys of secondary schools belonging to Commerce stream" is rejected as the results are in favour of girls, who possess better metacognition abilities as compared to boys.

**Hypothesis 2-**

**"There exists no significant difference in the Metacognitive ability of secondary school boys and girls."**

In order to test this hypothesis, mean and S.D of Metacognitive ability among girls and boys of secondary schools belonging to 10+1 commerce stream was calculated. The scores of girls and boys have been described in terms of mean, S.D and t-value in the table (1). The table reveals that the mean score and S.D of boys is 90.17 and 13.87 respectively and mean score and S.D of girls is 94.10 and 11.39 respectively. The t-value comes out to be 2.91 which is significant at both 0.01 and 0.05 level of significance.

Hence, the hypothesis no.2, "There exists no significant difference in metacognition among girls and boys of secondary schools belonging to Commerce stream" is rejected. Hence, it may be concluded that Female students are more competent in using their Metacognitive Ability. The probable reason may be that globalization and advancements in technology are driving changes in the females basic skills as well as capacity to read critically, write persuasively, think and reason logically, and solve complex problems.

**HYPOTHESIS 3-**

**"There exists no significant difference in the Socio-Economic Status of secondary school boys and girls."**

In order to test this hypothesis, mean and S.D of Socio-Economic Status among girls and boys of secondary schools belonging to 10+1 commerce stream was calculated. The scores of girls and boys have been described in terms of mean, S.D and t-value in the table

1. The table 1 reveals that the mean score and S.D of boys is 52.26 and 8.861 respectively and mean score and S.D of girls is 57.73 and 7.283 respectively. The t-value comes out to be 4.77 which is significant at both 0.01 and 0.05 level of significance. Hence, the hypothesis no.3, "There exists no significant difference in Socio-Economic Status among girls and boys of secondary schools belonging to Commerce stream is rejected.

**Hypothesis 4-**

**“There exists significant relationship between Academic Achievement and Metacognitive ability of secondary school students.”**

In order to test this hypothesis, coefficient of correlation of academic achievement and metacognition of secondary school students belonging to 10+1 commerce stream was calculated. The scores of coefficients of correlation of achievement and metacognition of secondary school students has been shown in the table (2).

**Table 2**  
**Coefficient of correlation of achievement and metacognition of secondary school students belonging to 10+1 commerce stream.**

Variable	Academic Achievement	Socio – Economic Status	Metacognition
Metacognition	0.87		-----
Achievement	-----	0.59	0.87
Socio – Economic Status	0.59		

The table 2 reveals that the achievement and metacognition of secondary school students have positive correlation hence, the hypothesis no 4 " There exists significant relationship between achievement and metacognition of secondary school students belonging to medical stream" is not rejected. Thus, the result reveals that there is significant relationship in achievement and metacognition of secondary school students belonging to 10+1 commerce stream.

This result is quite in conformity with results of the studies conducted by Kaniel, Licht and Peled (2000), Basant (2000), Thomas and Barksdale-Ladd (2000), Desoete, Roeyers and Buysee (2001), Hall (2001), who also found significant positive relationship between Metacognitive Ability and Academic Achievement of higher secondary school students

## **HYPOTHESIS 5-**

**“There exists no significant relationship between Academic Achievement and Socio-economic status of secondary school students.”**

In order to test this hypothesis, coefficient of correlation of achievement and Socio-economic status of secondary school students belonging to 10+1 commerce stream was calculated. The scores of coefficients of correlation of achievement and Socio-economic status of secondary school students have been shown in the table (2).

The table 2 reveals that the achievement and Socio-economic status of secondary school students have positive correlation hence, the hypothesis no 5 "There exists no relationship between achievement and metacognition of secondary school students belonging to medical stream" is not rejected. Thus, the result reveals that there is insignificant relationship in achievement and metacognition of secondary school students belonging to 10+1 commerce stream.

### **Findings of the study**

1. There exists significant difference in Academic Achievement of secondary school boys and girls.
2. There exists significant difference in the Metacognitive ability of secondary school boys and girls.
3. There exists significant difference in the Socio-Economic Status of secondary school boys and girls.
4. There exists significant relationship between Academic Achievement and Metacognitive ability of secondary school students.
5. There exists significant relationship between Academic Achievement and Socio-Economic Status of secondary school students.

### **Implications**

1. Teacher should identify the students with low metacognitive ability and provide training to them to enhance their Metacognitive ability. It can be inculcated by providing adequate number of opportunities in classroom by creating suitable environment to practice their skills and strategies along with feedback to students.
2. The academic achievement of students, belonging to low socio-economic status, can be enhanced by providing them the access to free books, latest technologies - tabs, online apps, e-learning content and interactive media instruments.

## REFERENCES

- Annevirta, T., & Vauras, M. (2006). Developmental changes of metacognitive skills in elementary school children. *The Journal of Experimental Education*, 7(3), 197-225.
- Attri, & Neelam. (2013). Academic anxiety and achievement of secondary school students—A study on gender differences. *International Journal of Behavioral Social and Movement Sciences*, 2(1), 27-33.
- Bala, P & Shaffiu, K.Q. (2016). Academic achievement of secondary school students in relation to their problem solving ability and examination anxiety. *The International Journal of Indian Psychology*, 3(4), 138-154.
- Bandhana and Sharma, Darshana P. (2012). Home environment, mental health and academic achievement among higher secondary school students. *International Journal of Scientific and Research Publications*, 2(5), 1-4.
- Battista, M. T. (1990). Spatial visualization and gender differences in high school geometry. *Journal for Research in Mathematics Education*, 21(1), 47-60.
- Brown, A.L. (1987). Metacognitive development and reading. In R.J. Sprio, B. Bruce, & W. Brewer (Eds.), *Theoretical issues in reading comprehension*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Bunce, D. M., & Heikkinen, H. (1986). The effects of an explicit problem-solving approach on mathematical chemistry achievement. *Journal of Research in Science Teaching*, 23, 11-20.
- Cetinkaya, P., & Erkin, E. (2002). Assessment of metacognition and its relationship with reading comprehension, achievement and aptitude. *Bogazici University Journal of Education*, 19(1), 1-11.
- Christian, J. (1980). Study habits as a function of need achievement. *Asian Journal of Psychological Education*, 77(1), 6-12.
- Cohen, J., Kennedy Justice, M., Pai, S., Torres, C., Toomey, R., DePierro, E. & Garafalo, F., (2000). Encouraging meaningful quantitative problem solving. *Journal of Chemical Education*, 77, 1166-1173.
- Cross, D. R., & Paris, S.G. (1988). Developmental and instructional analyses of children's metacognition and reading comprehension. *Journal of Educational Psychology*, 80(2), 131-142.
- Crow, L.D., & Crow, A. (1969). *Adolescent development and adjustment*. New York: McGraw-Hill Book Company.
- Desoete, A., Roeyers, H. & Buysse, A. (2001). Metacognition and mathematical problem solving in grade 3. *Journal of Learning Disabilities*, 34, 435-449.
- Diaz, I. (2015). Training in metacognitive strategies for students' vocabulary improvement by using learning journals. *Issues in Teachers Professional Development*, 17(1), 87-102.
- Dubey, L.N. (2011). *Problem Solving Ability Test*. Agra: National Psychological Corporation.
- Encyclopedia of Psychology* (2002). Definition of achievement. Retrieved on 8 May, 2012 from [www.Encyclopedia.com](http://www.Encyclopedia.com).
- Ferguson, A. E. (1990). Academic intrinsic motivation in young elementary school children. *Journal of Educational Psychology*, 82(3), 525-538.
- Flavell, J.H. (1979). Metacognition and cognitive monitoring: A new area of cognitive development inquiry. *American Psychology*, 34, 906-911.
- Gakhar, S.C. (2003). Effect of creativity, problem solving ability on academic achievement of students at secondary level. *Journal of Indian Education*, 29 (3), 100-106.
- Good C.V. (1959). *Dictionary of Education*. New York: Mc Graw Hill Book Company.
- Govil, P. (2003). *Metacognitive Inventory (MCI)*. Agra: National Psychological Corporation.
- Gupta, M., & Pasrija, P. (2015). Effect of problem solving ability on academic achievement of high school students: A comparative study. *International Journal of Research & Education*, 4 (2), 45- 59.
- Gupta, R. (2013). Problem solving ability and academic achievement among students belonging to scheduled tribe and scheduled caste categories. *International Journal of Research Pedagogy and Technology in Education and Movement Sciences*, 1(3), 2319-3050.

- Haws, G.R., & Haws, L.S. (1982). *The Concise Dictionary of Education*. New York: Van Nostrand Reinhold Co. Inc.
- Hennessey, M. G. (1999). *Probing the dimensions of metacognition: Implications for conceptual change teaching- learning*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Himghaempanah, E., Karimi, B. & Mahmoodnajaifi (2014). A study of relationship between metacognitive skills (wells) and internet addiction with academic achievement in students of Islamic Azad university. *European Journal of Experimental Biology*, 4(1), 487-493.
- Jagadeeswari, A.S. & Chandrasekaran, V. (2013). Promoting metacognitive awareness among higher secondary student. *An International Journal for Interdisciplinary Studies*, 2(24), 1888-1897.
- Jaleel, S. (2016). A study on the metacognitive awareness of secondary school students. *Universal Journal of Educational Research*, 4(1), 165-172.
- Kadivar, P. (2004). *Educational Psychology*, Tehran: Samt Publication.
- Kaur, S. & Kaur, R. (2017). Academic achievement in relation to metacognition and problem solving ability among secondary school students. *Scholarly Research Journal for Humanity Science & English Language*, 4(24), 6551-6564.
- Khan, F.A., & Khan, S.A. (2013). Metacognitive reading strategies in relationship with scholastic achievement in science of IX standard students of English medium schools in Aurangabad city. *MIER Journal of Educational Studies, Trends & Practices*, 3(1), 119-129.
- Kozol, J. (1984). *The night is dark and I am far from home: a political indictment of the U.S. Public schools*. New York: Continuum Publishing Company.
- Kuhn, D. & Dean, D. (2004). A bridge between cognitive psychology and educational practice. *Theory into Practice*, 43(4), 268-273.
- Kumari, M. (2001). *Learning strategies, achievement motivation and academic performance of high school students*, Unpublished M.Ed. Dissertation, Chandigarh: Punjab University.
- Lester, F.K. (1994). *Mathematical Problem-Solving Research*. *Journal for Research in Mathematics Education*, 25 (6), 660-675.
- Maheswari, V., & Benjamin, E.W. (2015). Problem solving ability and academic achievement in mathematics of VII standard students in Madurai district. *Indian Journal of Applied Research*, 5(2), 166-168.
- Matemba K.C., Awinja, J. & Otiew, K.O. (2014). Relationship between problem solving approaches and academic performance: A case of Kakamega municipality, Kenya. *International Journal of Human Resource Studies*, 4(4), 2162-3068.
- Mayer, E.R. (1998). Cognitive, Metacognitive and Motivational Aspects of Problem solving. *Instructional Science*, 26, 49-63.
- Mayer, R. E., & Wittrock, M.C. (2006). Problem solving. In P.A. Alexander and P.H. Winne (Eds.), *Handbook of Educational Psychology*, Mahwah, NJ: Lawrence Erlbaum.
- McLean, D. C. (2001). *The achievement motivation*. New York: Application- Century- Crofts.
- Mehta, H. N. (1969). *Guiding students for matriculation to graduation: Analysis of a four year professional development program for undergraduate unpublished*. D.Ed. D. Dissertation, Central Michigan University, *Dissertation Abstracts International*, 70 (12), 52-78.
- Moktari, H. & Richard, S. (2002). Elementary students' spontaneous metacognitive functions in different types of mathematical problems. *Journal of Research in Mathematics Education*, 2(2), 242-267.
- Nurrenbern, S. C., & Pickering, M., (1987). Concept learning versus problem solving: Is there a difference? *Journal of Chemical Education*, 64, 508-510.
- Owo, W.J. & Ikwt, E.F. (2015). Relationship between metacognition, attitude and academic achievement of secondary school chemistry students in port Harcourt, Rivers state. *IOSR Journal of Research & Method in Education*, 5(6), 6-12.



- Ozsoy, G., & Ataman, A. (2009). *The effect of metacognitive strategy training on mathematical problem-solving achievement. Electronic Journal of Elementary Education, 1(2), 67-82.*
- Rani, R., & Govil, P. (2013). *Metacognition and its correlates: A study. International Journal of Advancement in Education and Social Sciences, 1(1), 20-25.*
- Rezvan, S., & Ahmadi, S.A., & Abedi, M.R. (2007). *The effects of metacognitive training on the academic achievement and happiness of Esfahan university conditional students. Journal of Counselling Psychology, 19(4), 415-428.*
- Sawhney, N. & Bansal, S. (2015). *Metacognitive awareness of undergraduate students in relation to academic achievement. The International Journal of Indian Psychology, 3(1), 2349-3429.*
- Schraw, G., & Dennison, R.S. (1994). *Assessing metacognitive awareness. Contemporary Educational Psychology, 19(2), 460-475.*
- Schraw, G., Crippen, K.J., & Hartley, K. (2006). *Promoting self-regulation in science education: Metacognition as part of a broader perspective on learning. Research in Science Education, 36, 111-139.*
- Shahri, R.J.K., Zadeghan, A. I., Monii, M.F & Kalshani, Z.A. (2015). *The role of cognitive predictors in academic achievement of high school students in Salmas. Biological Forum- An International Journal, 7(2), 50-60.*
- Sodhi, T.S., Suri, A. & Sodhi, H.K. (2012). *Philosophical and Sociological Foundation of Education .Patiala: Bawa Publications.*
- Singh, P. (2018). *A Study of Metacognitive Ability of Commerce Students in Relation to Academic Achievement. Scholarly Research Journal for Interdisciplinary Studies, 5(43), 9284-9289.*
- Swanson, H.L. (1990). *Influence of metacognitive knowledge and aptitude on problem solving. Journal of Educational Psychology, 82, 306-314.*
- Teong, S.K. (2002). *The effect of metacognitive training on mathematical problem solving. Journal of computer Assisted Learning, 19(1), 46-55.*
- Travers, R.W.M. (1970). *Essentials of Learning. New York: Macmillian.*
- Trow, L.M. (1960). *Advances Educational Psychology. New Delhi: Asoke K. Ghoh Publishers.*
- Upadhyay, S. K., & Saxena, A. (2008). *Upadhyay- Saxena Socio- economic status scale. Agra: National Psychological Corporation.*
- Vande Kamp, M., Admiraul, W., Van Drie, J., & Rijlaarsdam, G. (2015). *Enhancing divergent thinking in visual arts education: effect of explicit instruction of metacognition. British Journal of Educational Psychology, 85(1), 47-58.*
- Victor, A.M. (2004). *The effects of metacognitive instruction on the planning and academic achievement of first and second grade children. (Doctoral Thesis). Chicago, IL: Graduate college of the Illinois Institute of Technology.*
- Vygotsky L. (1978). *Mind in society. Cambridge, MA: Harvard University Press,*
- Whimbley, A. & Lochhead, J. (1986). *Problem Solving and Comprehension. Hillsdale, NJ: Lawrence Erlbaum Associates.*