A Study of Metacognitive Abilities of Government and Private Senior Secondary School Students

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Abstract

Metacognitive Abilities are now emerging as the advance paradigm for senior secondary education. The present study was conducted for measuring Metacognitive Abilities among government and private Senior Secondary school Students. A representative sample of the entire population was gathered from 257 secondary school students. The purposive sampling approach was used to pick a sample of government and private senior secondary pupils. For this study, the researcher used a survey research approach. For this study, the researcher solely employed a Punita Govil-developed Metacognition Inventory (MCI) questionnaire. The investigator employed mean, standard deviation, and t-test to analyses and interpret the data. The study revealed that there is significant difference in metacognitive abilities between Male and female students of government and private senior secondary school. The study also revealed that there is a significant difference in metacognitive abilities between urban and rural students of government and private senior secondary school and there is no significant difference in metacognitive abilities between the arts and science stream students of government and private senior secondary school.

Keywords: Metacognitive abilities, government senior secondary students, private senior secondary students.

Introduction

Metacognition is a type of high-order thinking that entails exercising active control over the mental operations necessary for learning. Metacognitive processes include approaching a particular learning activity, assessing comprehension, and tracking progress towards a goal. The ability to use metacognition effectively is essential for learning. It has been demonstrated that effective thinkers tend to have stronger metacognitive skills. Numerous researches have been carried out over the last few decades to examine the environmental elements that may have an impact on children's metacognitive abilities. The child's house is one of the most significant environmental influences. For the continuation of human life, it is the most crucial institution. In actuality, parents' effect on their children lasts their entire lives.

Children are a country's most valuable resource, and it is important to design and develop them through carefully modified socialisation processes at home and carefully planned learning experiences in educational institutions in order to meet the demands of the competition and excellence world as they emerge. Everyone is expected to be a high achiever or a critical thinker in today's modern culture.

Perhaps academic performance is the most important factor to consider when assessing someone's thinking ability and capacities. Academic success has evolved into a key factor in a child's future. The kids must have the capacity for metacognition in order to achieve high academic goals.

Review of Related Studies:

- Jayaprabha, G., and Kanmani, M. (2013) used a quasi-experimental approach to study "Metacognitive Awareness in Science Classroom of Higher Secondary Students" and they found that cooperative learning could be implemented frequently in the classroom to improve higher secondary students' metacognitive awareness.
- Rekha Rani and Punita Govil (2013) studied metacognition and its correlates in a sample of 313 Aligarh District undergraduate students. Students' metacognitive abilities have been measured using the metacognitive inventory (MCI), which was created by Dr. Punita Govil. The data were analysed using the 't' test and analysis of variance. The study's results show that while gender has no impact on undergraduate students' metacognition, urban students' levels of metacognition are much higher than those of their rural counterparts.
- The results of Kaur & Kaur (2016) indicate that there is no significant connection between metacognition and problem-solving skills and achievement of medical students in secondary school. Metacognition and academic success among secondary school students studying medicine are unrelated.
- Singh & Singh (2017) studied the academic achievement of secondary school students in relation to socioeconomic status and metacognitive ability on a sample of 200 students from +1 commerce grades from various Amritsar district schools. The metacognitive ability test by Punita Govil was utilised to gather information. According to the study, there is a sizable gap between secondary school boys' and girls' academic accomplishment as well as between boys' and girls' metacognitive abilities.
- Popoola, Oginni, and Fadiji (2021) found that metacognitive ability is gender insensitive and that there is no indication that students' metacognitive ability has a significant influence on academic achievement in mathematics.

Statement of the Problem:

"A Study of Metacognitive Abilities of Government and Private Senior Secondary School Students"

Objectives of the Study

1. To study the gender differences in the metacognitive skills of senior secondary school students from government and private schools.
2. To study the differences in the metacognitive skills of senior secondary school students from government and private schools with regard to their location.
3. To study the metacognitive skills of senior secondary school students from government and private schools according to academic stream.

Hypothesis of the Study:

1. There is no. significant difference in metacognitive abilities between male and female students of Government and Private Senior Secondary Schools.
2. There is no. significant difference in metacognitive abilities between rural and urban students of Government and Private Senior Secondary Schools.
3. There is no. significant difference in metacognitive abilities between the arts and science stream of Government and Private Senior Secondary Schools.

Delimitation of the Study:

- Study area: The sample for this study was solely drawn from Ghaziabad.
- Sample size: For the experiment, only 300 samples were examined.
- Resources: For this study, the researcher solely utilised a Metacognition Inventory (MCI) questionnaire created by Punita Govil.
- The mean, standard deviation, and t-test were used by the researcher as statistics.
- Sample: The current study project was restricted to seniors in public and private senior secondary schools (11th and 12th grades)

Operational Definition of Key Terms:

Metacognition- Flavell (1976) defined metacognition as "knowledge of one's own cognitive processes and products, or anything relevant to them.In connection to a cognitive item or piece of information, metacognition refers to, among other

things, the intentional monitoring, subsequent regulation, and orchestration of these processes.

Sr. Secondary Students: Students in the eleventh and twelfth grades are referred to as senior secondary students. The secondary level, particularly the higher secondary level, is open to students who complete the Madhyamik exam.

Methodology:

Research Method:

For this study, the researcher used both the quantitative research methodology and the descriptive survey method as a research strategy.

Sample and Sampling: 257 individuals in all were selected to make up the sample. Purposive sampling was used by the researcher for this investigation.

Population: All UP (India) Sr. Secondary students (classes 11 and 12) are the study's target demography.

Sample Profile: Distribution of the sample in accordance with the following independent factors:

Tools: The current study was completed using the Punita Govil-created Metacognition Inventory (MCI). The test battery consists of 30 items. The cognitive processes and cognitive control are evaluated by this instrument.

Independent Variables		Government	Private
		N	N
Gender	Male	76	65
	Female	56	60
Locality	Rural	72	56
	Urban	60	69
Stream of Study	Arts	51	48
	Science	81	77

Testing the Hypothesis:

Hypothesis - 1: There is no,significant difference in metacognitive abilities between boys and girls students of Government and Private Senior Secondary Schools.

Table No 2.0: Comparison of metacognitive abilities between Male and Female students of Government and Private Senior Secondary Schools of Ghaziabad District.

Sr.No.	Group Compared	N	Mean	S.D.	df	"t" Value	Level of Significance
1.	A_1 and B_1	76	79.51	14.99	139	1.9957	Significant
		65	84.46	14.3			
2.	A_1 and B_2	76	79.51	14.99	134	1.8277	No Significant
		60	84.12	14.05			
3	A_2 and B_1	56	76.79	16.86	119	2.7093	Significant
		65	84.46	14.3			
4	A_2 and B_2	56	76.79	16.86	114	2.5498	Significant
		60	84.12	14.05			

**** "Significant at 0.01 level; *Significant at 0.05 level.**

Analysis: From the table – 2.0 A1 : Govt. senior secondary schools male students, A2 : Govt. senior secondary schools female students, B1:Pvt. senior secondary schools male students and B2 : Pvt. senior secondary schools female students. it can be observed that the mean and S.D. score of male and female students and then calculated t-value A1 & B1 is 1.9957, A1 & B2 is 1.8277, A2 & B1 is 2.7093, and A2 & B2 is 2.5498. Critical value on't'-table at a 0.05 level of significance is 1.97 and the 0.01 level of significance is 2.60.

Interpretation: Since, It is inferred from the results that

i. There is no significant difference between metacognitive abilities Govt. senior secondary schools male students and Pvt. senior secondary schools male students. So hypothesis is rejected.
ii. There is no significant difference between metacognitive abilities Govt. senior secondary schools male students and Pvt. senior secondary schools female students. So hypothesis is accepted.
iii. There is no significant difference between metacognitive abilities Govt. senior secondary schools female students and Pvt. senior secondary schools male students. So hypothesis is rejected.
iv. There is no significant difference between metacognitive abilities Govt. senior secondary schools female students and Pvt. senior secondary schools female students. So hypothesis is rejected.

Figure 01 shows that Pvt. senior secondary schools students have got higher scores than Govt. senior secondary schools students. High score indicates higher level of metacognition.

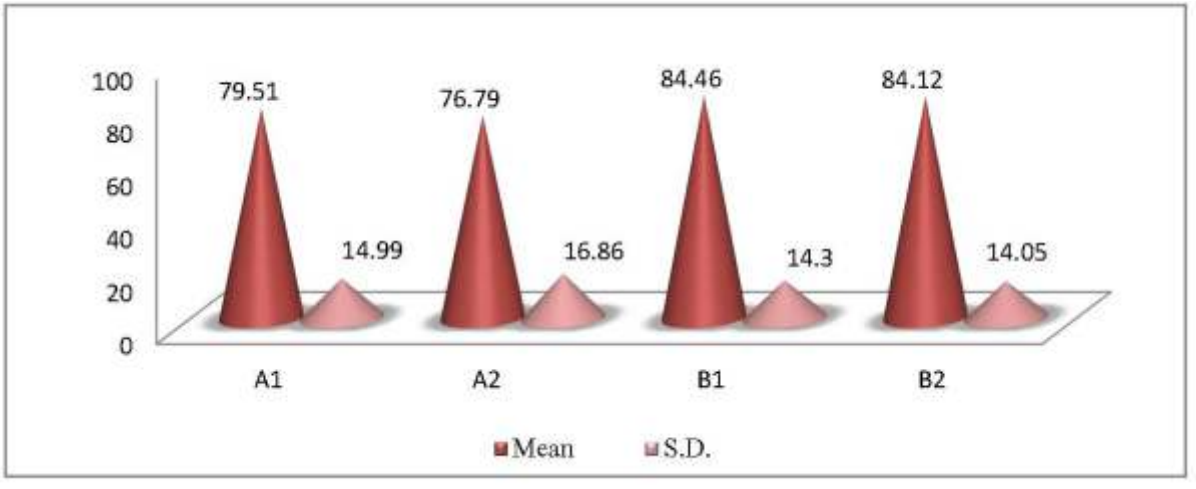

Figure 01: showing Mean & S.D. score of metacognitions between Govt. and Pvt. senior secondary schools male and female students

Hypothesis - 2: There is no significant difference in metacognitive abilities between urban and rural students of Government and Private Senior Secondary Schools.

Table No 3.0: Comparison of metacognitive abilities between Urban and Rural students of Government and Private Senior Secondary Schools of Ghaziabad district in relation to locale.

Sr. No	Group Compared	N	Mean	S.D.	Df	"t" Value	Level of Significance
1.	C_1 and D_1	72	73.99	19.21	1.26	2.2568	Significant
		56	80.79	13.36			
2	C_1 and D_2	72	73.99	19.21	139	3.6651	Significant
		69	84.57	14.65			
3	C_2 and D_1	60	75.82	18.07	114	1.6741	No Significant
		56	80.79	13.36			
4	C_2 and D_2	60	75.82	18.07	127	3.0351	Significant
		69	84.57	14.65			

**** "Significant at 0.01 level; *Significant at 0.05 level;**

Analysis: From the table – 3.0, C1: Govt. senior secondary schools rural students, C2: Govt. senior secondary schools urban students, D1:Pvt. senior secondary schools Rural students and D2: Pvt. senior secondary schools Urban students. it can be observed that the mean and S.D. score of male and female students and then calculated t-value C1 & D1 is 2.2568, C1 & D2 is 3.6651, C2 & D1 is 1.6741, and C2 & D2 is 3.0351. Critical value on't'-table at a 0.05 level of significance is 1.97 and the 0.01 level of significance is 2.60.

Interpretation: Since, It is inferred from the results that

i. There is no significant difference between metacognitive abilities Govt. senior secondary schools rural students and Pvt. senior secondary schools rural students. So hypothesis is rejected.
ii. There is no significant difference between metacognitive abilities Govt. senior secondary schools rural students and Pvt. senior secondary schools urban students. So hypothesis is rejected.
iii. There is no significant difference between metacognitive abilities Govt. senior secondary schools urban students and Pvt. senior secondary schools rural students. So hypothesis is accepted.
iv. There is no significant difference between metacognitive abilities Govt. senior secondary schools urban students and Pvt. senior secondary schools urban students. So hypothesis is rejected.

Figure 02 shows that Pvt. senior secondary school urban & rural students have got higher scores than Govt. senior secondary schools urban & rural students. High score indicates higher level of metacognition.

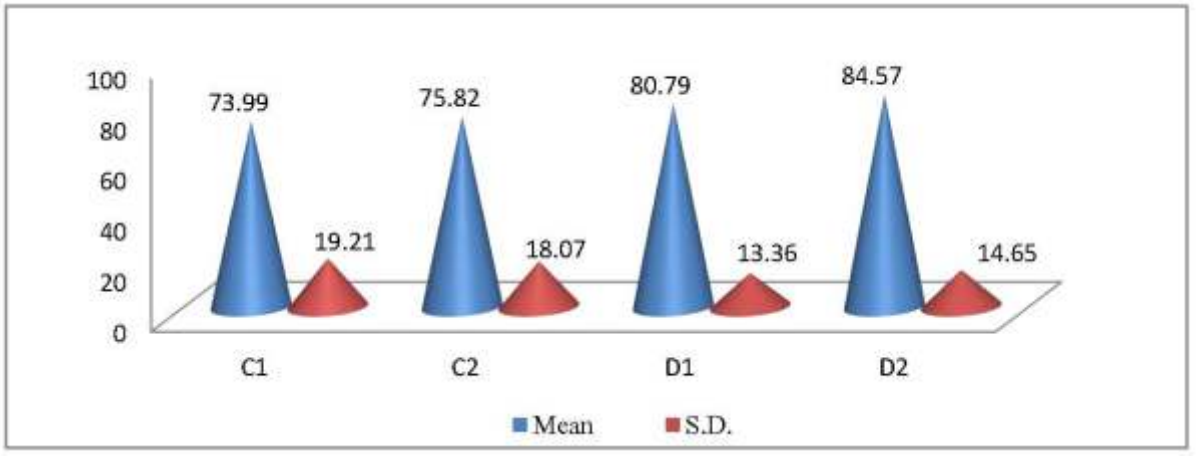

Figure 02: showing Mean & S.D. score of metacognition between Govt. and Pvt. senior secondary schools rural and urban students

**** "Significant at 0.01 level; *Significant at 0.05 level;**

Analysis: From the table – 3.0, C1: Govt. senior secondary schools rural students, C2: Govt. senior secondary schools urban students, D1:Pvt. senior secondary schools Rural students and D2: Pvt. senior secondary schools Urban students. it can be observed that the mean and S.D. score of male and female students and then calculated t-value C1 & D1 is 2.2568, C1 & D2 is 3.6651, C2 & D1 is 1.6741, and C2 & D2 is 3.0351. Critical value on't'-table at a 0.05 level of significance is 1.97 and the 0.01 level of significance is 2.60.

Interpretation: Since, It is inferred from the results that

i. There is no significant difference between metacognitive abilities Govt. senior secondary schools rural students and Pvt. senior secondary schools rural students. So hypothesis is rejected.
ii. There is no significant difference between metacognitive abilities Govt. senior secondary schools rural students and Pvt. senior secondary schools urban students. So hypothesis is rejected.
iii. There is no significant difference between metacognitive abilities Govt. senior secondary schools urban students and Pvt. senior secondary schools rural students. So hypothesis is accepted.
iv. There is no significant difference between metacognitive abilities Govt. senior secondary schools urban students and Pvt. senior secondary schools urban students. So hypothesis is rejected.

Figure 02 shows that Pvt. senior secondary school urban & rural students have got higher scores than Govt. senior secondary schools urban & rural students. High score indicates higher level of metacognition.

Hypothesis-3: There is no significant difference in metacognitive abilities between the arts and science stream students of government and private Senior Secondary schools.

Table No 4.0: Comparison of metacognitive abilities between arts and science students of government and private senior secondary school of Ghaziabad district in relation to stream

Sr. No	Group Compared	N	Mean	S.D.	df	"t" Value	Level of Significance
1.	E_1 and F_1	51	79.16	15.35	97	0.2122	No Significant
		48	79.81	15.37			
2	E_1 and F_2	51	79.16	15.35	126	1.527	No Significant
		77	83.3	14.8			
3	E_2 and F_1	81	76.05	17.42	127	1.2378	No Significant
		48	79.81	15.37			
4	E_2 and F_2	81	76.05	17.42	156	2.812	Significant
		77	83.3	14.8			

**** "Significant at 0.01 level; *Significant at 0.05 level;**

Analysis: From the table – 3.0, C1: Govt. senior secondary schools rural students, C2: Govt. senior secondary schools urban students, D1:Pvt. senior secondary schools Rural students and D2: Pvt. senior secondary schools Urban students. it can be observed that the mean and S.D. score of male and female students and then calculated t-value C1 & D1 is 2.2568, C1 & D2 is 3.6651, C2 & D1 is 1.6741, and C2 & D2 is 3.0351. Critical value on't'-table at a 0.05 level of significance is 1.97 and the 0.01 level of significance is 2.60.

Interpretation: Since, It is inferred from the results that

i. There is no significant difference between metacognitive abilities Govt. senior secondary schools rural students and Pvt. senior secondary schools rural students. So hypothesis is rejected.
ii. There is no significant difference between metacognitive abilities Govt. senior secondary schools rural students and Pvt. senior secondary schools urban students. So hypothesis is rejected.
iii. There is no significant difference between metacognitive abilities Govt. senior secondary schools urban students and Pvt. senior secondary schools rural students. So hypothesis is accepted.
iv. There is no significant difference between metacognitive abilities Govt. senior secondary schools urban students and Pvt. senior secondary schools urban students. So hypothesis is rejected.

Figure 02 shows that Pvt. senior secondary school urban & rural students have got higher scores than Govt. senior secondary schools urban & rural students. High score indicates higher level of metacognition.

Hypothesis-3: There is no significant difference in

**** "Significant at 0.01 level; *Significant at 0.05 level;**

Analysis: From the table – 4.0, E1 : Govt. senior secondary schools art stream students, E2 : Govt. senior secondary schools science stream students, F1:Pvt. senior secondary schools art stream students and F2 : Pvt. senior secondary schools science stream students. it can be observed that the mean and S.D. score of male and female students and then calculated t-value E1 & F1 is 0.2122, E1 & F2 is 1.527, E2 & F1 is 1.2378, and E2 & F2 is 2.812. Critical value on't'-table at a 0.05 level of significance is 1.97 and the 0.01 level of significance is 2.60.

Interpretation: Since, It is inferred from the results that

i. There is no significant difference between metacognitive abilities Govt. senior secondary schools art stream students and Pvt. senior secondary schools art stream students. So hypothesis is accepted.

ii. There is no significant difference between metacognitive abilities Govt. senior secondary schools art stream students and Pvt. senior secondary schools science stream students. So hypothesis is accepted.

iii. There is no significant difference between metacognitive abilities Govt. senior secondary schools science stream students and Pvt. senior secondary schools art stream students. So hypothesis is accepted.

iv. There is no significant difference between metacognitive abilities Govt. senior secondary schools science stream students and Pvt. senior secondary schools science stream students. So hypothesis is rejected.

Figure 03 shows that Pvt. senior secondary school art stream and science stream students have got higher scores than Govt. senior secondary schools art stream and science stream students. High score indicates higher level of metacognition.

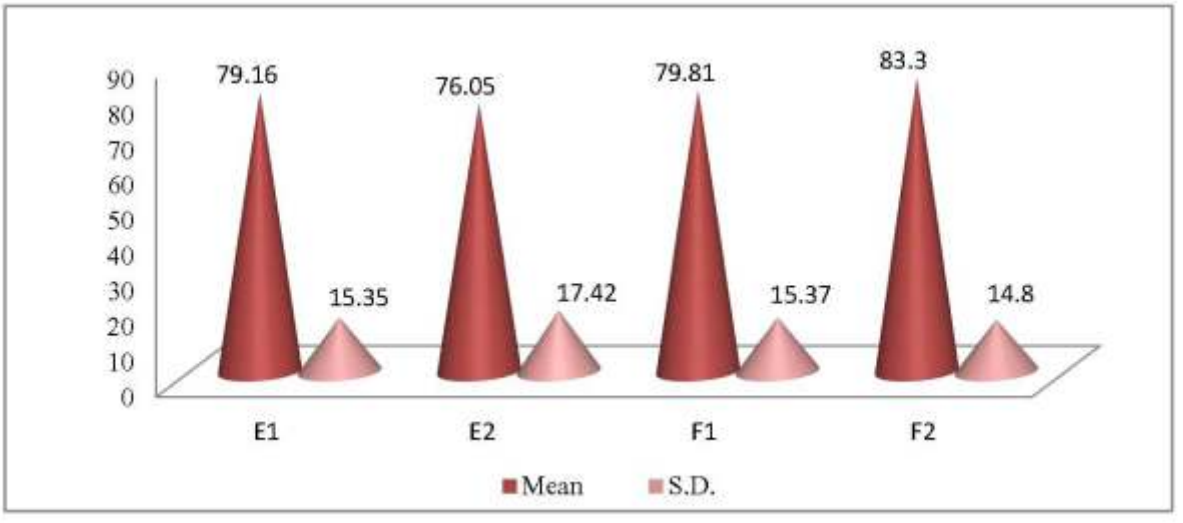

Figure 03: showing Mean & S.D. score of metacognition between art stream and science stream senior secondary schools rural and urban students

Findings of the Study:

The following findings are given below obtain from the above statistical analysis and the interpretation.

i. There is significant difference between metacognitive abilities Govt. senior secondary schools male students and Pvt. senior secondary schools male students.
ii. There is no significant difference between metacognitive abilities Govt. senior secondary schools male students and Pvt. senior secondary schools female students.
iii. There is significant difference between metacognitive abilities Govt. senior secondary schools female students and Pvt. senior secondary schools male students.
iv. There is significant difference between metacognitive abilities Govt. senior secondary schools female students and Pvt. senior secondary schools female students.
v. There is significant difference between metacognitive abilities Govt. senior secondary schools rural students and Pvt. senior secondary schools rural students.
vi. There is significant difference between metacognitive abilities Govt. senior secondary schools rural students and Pvt. senior secondary schools urban students.
vii. There is no significant difference between metacognitive abilities Govt. senior secondary schools urban students and Pvt. senior secondary schools rural students.
viii. There is significant difference between metacognitive abilities Govt. senior secondary schools urban students and Pvt. senior secondary schools urban students.
ix. There is no significant difference between metacognitive abilities Govt. senior secondary schools art stream students and Pvt. senior secondary schools art stream students.
x. There is no significant difference between metacognitive abilities Govt. senior secondary schools art stream students and Pvt. senior secondary schools science stream students.
xi. There is no significant difference between metacognitive abilities Govt. senior secondary schools science stream students and Pvt. senior secondary schools art stream students.
xii. There is significant difference between metacognitive abilities Govt. senior secondary schools science stream students and Pvt. senior secondary schools science stream students.

Conclusion:

To better understand the subject, they commonly use these strategies during the pre-reading session. Students use strategies including establishing the purpose of reading, taking a broad view of the subject matter, analysing how the text is organised, adding visuals like images, figures, or tables, and paying particular attention to words or phrases in boldface or italic. Students use the supportive reading techniques the least, which are used while reading to increase comprehension and recall. In addition to taking notes and underlining important passages, students also read aloud, use dictionaries, paraphrase, ask and answer questions, and highlight key passages.

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