

Impact Of Metacognition On Academic Achievement Of Higher Secondary Scheduled Caste Students-Gender Wise**Usha Devi T**

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ABSTRACT

This study aims to find out the influence of metacognition on academic achievement of higher secondary scheduled caste students with regard to the gender. Survey method is used for the study. The sample selected for the present study consists of 652 higher secondary students studying in government, government-aided and private schools using simple random sampling method. Metacognition Scale (2018) and the percentage of marks scored by the sample students in their annual examination has been taken as the academic achievement score for this study. The data collected is analyzed using 't' test and Pearson's product moment co-efficient statistical techniques. Finding shows that there is a significant impact of Metacognition and Academic Achievement of Higher Secondary Scheduled Caste Students.

Keywords: Impact, metacognition, academic achievement and higher secondary scheduled caste students

Introduction

Metacognition is an essential aspect in the process of learning. The gradual growth of cognitive abilities such as ability to attend, perceive discover, recognize, imagine, conceptualize remember etc. It referred as the development of cognitive skills. It also refers to consequent growth in knowledge and adjustment to the environment. The nutritional, emotional and social factors of the learners influence the cognitive development.

Academic achievement refers to the degree or level of success or proficiency attained in some specific scholastic or academic work. It is measured and assessed by achievement tests and compared to the set norms to evaluate an individual performance.

Studies say that there exists a significant difference in the degree of scholastic achievement between students with high metacognition and those with poor or low metacognition. Students who lack metacognition may be more dependent on their parents and have lower academic goals.

Significance of the study

The educational backwardness of the scheduled caste communities is generally attributed to poverty and illiterate home environments prevailing among them. Scheduled castes that look back upon their often painful experiences in school refer not to their

invisibility in textbooks but to the distinct message of social inferiority that is conveyed to them by their teachers and peers. After Independence, the position of the scheduled caste has been remarkably good and their status has improved as compared to the pre-independence period. Today, a significantly larger number of children from scheduled caste community attend high schools and colleges as compared to the situation that prevailed even five decades ago. Even though, still scheduled caste students are suffering from complex, anxiety, fear, inner weakness etc.

In fact, they are generally neglected during their childhood and this early stage of negligence and deprivation sometimes affects their metacognition. Metacognition is very important in one's learning which is the learner's monitoring of how well he or she is learning, and academic success which is reflected in class grades accumulated over the college tenure. The use of metacognitive strategies ignites one's thinking and can lead to more profound learning and improved performance, especially among learners who are struggling. It refers to higher-order mental processes involved in learning such as making plans for learning, using appropriate skills and strategies to solve a problem, making estimates of performance, and calibrating the extent of learning. Metacognition holds great deal of promise for helping students do better in their academic achievement and comes out from their inner weakness. Metacognition influences on resilience to help the people who take an opt decision after thinking.

Academic achievement is one way to assess a student's learning. Special metacognitive training helps the children in their academic achievement and gives an exposure to show their hidden talent. The research on resilience specifically focused on discovering the protective factors that explain people's adaptation to adverse conditions including maltreatment catastrophic life events and also their academic achievement. Hence, the aim of this study is to examine the influence of Metacognition on academic achievement of higher secondary scheduled caste students.

Objectives of the Study

1. To find out the level of male and female of higher secondary scheduled caste students in their metacognition and its dimensions and Academic achievement.
2. To find out the significant relationship between male and female of higher secondary scheduled caste students in their metacognition its dimensions and Academic achievement
3. To find out the significant impact of metacognition on Academic achievement of higher secondary scheduled caste students.

Null hypothesis

1. There is no significant difference between male and female of higher secondary scheduled caste students in their metacognition and its dimensions and Academic achievement.
2. There is no significant relationship between male and female of higher secondary scheduled caste students in their metacognition its dimensions and Academic achievement
3. There is no significant impact of metacognition on Academic achievement of higher secondary scheduled caste students.

Methodology, Population and the Sample

Survey method used for the study. The sample selected for the present study consists of 652 higher secondary students studying in government, government-aided and private

schools of Tirunelveli, Tuticorin and Kanyakumari districts of Tamil Nadu, using simple random sampling method.

Tools used

1. To measure metacognition of the higher secondary students, the guide and the investigator had prepared the Metacognition Scale (2018).
2. Marks scored in their previous year annual examination were taken as scores of Academic achievement.

Reviews of related literature

Devaki and Marylilypushpam (2010) conducted a study on metacognitive ability and academic achievement in chemistry among XI standard students. The findings showed that there was positive correlation between metacognitive ability and achievement in chemistry among XI standard students.

Priya and Celene (2013) conducted a study on metacognitive ability of adolescent students and its relation with academic achievement. The findings showed that there was positive correlation between boys and girls in metacognitive ability and academic achievement. There was significant correlation between state and CBSE school students in metacognitive ability and academic achievement.

Amal Al-Shabibi (2017) conducted a study on Mathematical Problem-Solving and Metacognitive Skills of 5th Grade Students as a Function of Gender and Level of Academic Achievement. The results for metacognitive and mathematical problem-solving skills indicate that students with a high level of academic achievement obtained the highest score while students enrolled in a learning disability program obtained the lowest score. In addition, the results showed gender differences in metacognitive skills but no gender differences in mathematical problem-solving. The results are discussed in view of the role of metacognitive skills in improving student learning performance somewhat independently of their intelligence level and long-term memory.

Descriptive analysis

Table 1.1

Level of metacognition and its dimensions of higher secondary scheduled caste students in their academic achievement

Metacognition and its Dimensions and Academic Achievement	Low		Moderate		High		Total
	N	%	N	%	N	%	652
Planning	143	21.3	389	57.9	120	17.9	652
Monitoring	154	22.9	365	54.3	133	19.8	652
Evaluating	129	19.2	416	61.9	107	15.9	652
Metacognition	207	30.8	312	46.4	133	19.8	652
Academic Achievement	158	24.0	375	58.0	118	18.0	652

It is inferred from the table 1.1 that 21.3 percent of the higher secondary students have low, 57.9 percent have moderate and 17.9 percent have high level of planning of metacognition. It is also found that 22.9 percent of the higher secondary students have low,

54.3 percent have moderate and 19.8 percent have high level of monitoring of metacognition. In terms of evaluating metacognition among higher secondary students 19.2 percent of the higher secondary students have low, 61.9 percent have moderate and 15.9 percent have high level. In total 30.8 percent of the higher secondary students have low, 46.4 percent have moderate and 19.8 percent have high level of metacognition and its dimensions of higher secondary students. 24.0 percent of the higher secondary students have low, 58.0 percent have moderate and 18.0 percent have high level in their academic achievement of higher secondary students.

Table 1.2

Level of male and female higher secondary scheduled caste students in their metacognition and its dimensions and academic achievement

Metacognition and its Dimensions and Academic Achievement	Gender	Low		Moderate		High		Total	
		N	%	N	%	N	%	N	%
Planning	Male	56	8.5	142	21.7	44	6.7	242	372.3
	Female	87	13.3	247	37.8	76	11.6	410	62.8
Monitoring	Male	53	8.12	136	20.8	53	8.12	242	37.1
	Female	101	15.4	229	35.1	80	12.2	410	630.7
Evaluating	Male	53	8.12	144	22.0	45	6.9	242	372.3
	Female	76	11.6	272	41.7	62	9.5	410	62.8
Metacognition	Male	113	17.3	94	14.4	35	5.3	242	37.1
	Female	94	14.4	218	33.4	98	15.0	410	630.7
Academic Achievement	Male	57	8.7	167	25.6	18	2.7	242	37.1
	Female	63	9.6	306	46.9	41	6.2	410	62.8

It is inferred from the table 1.2 that 8.5 percent of the male higher secondary students have low level, 21.7 percent of them have moderate level and 6.7 percent of them have high level of planning. Among the female higher secondary students 13.3 percent of them have low level, 37.8 percent of them have moderate level and 11.6 percent of them have high level of planning.

Among the male higher secondary students 8.12 percent of them have low level, 20.8 percent of them have moderate level and 8.12 percent of them have high level of monitoring. Among the female higher secondary students 15.4 percent of them have low level, 35.1 percent of them have moderate level and 12.2 percent of them have high level of monitoring.

Among the male higher secondary students 8.12 percent of them have low level, 22.0 percent of them have moderate level and 6.9 percent of them have high level of evaluating. Among the female higher secondary students 11.6 percent of them have low level, 41.7 percent of them have moderate level and 9.5 percent of them have high level of evaluating.

Among the male higher secondary students 17.3 percent of them have low level, 14.4 percent of them have moderate level and 5.3 percent of them have high level of metacognition. Among the female higher secondary students 14.4 percent of them have low level, 33.4 percent of them have moderate level and 15.0 percent of them have high level of metacognition.

Among the male higher secondary students 8.7 percent of them have low level, 25.6 percent of them have moderate level and 2.7 percent of them have high level of academic achievement. Among the female higher secondary students 9.6 percent of them have low level, 46.9 percent of them have moderate level and 6.2 percent of them have high level of academic achievement.

Table 1.3

Difference between male and female higher secondary scheduled caste students in their metacognition and its dimensions

Metacognition and its Dimensions	Gender	N	Mean	SD	df	Calculated 't' value	Remarks
Planning	Male	242	1.9504	.64224	650	.442	N.S
	Female	410	1.9732	.63072			
Monitoring	Male	242	2.0000	.66320		.953	N.S
	Female	410	1.9488	.66326			
Evaluating	Male	242	1.9669	.63682		.022	N.S
	Female	410	1.9659	.57986			
Metacognition	Male	242	1.6777	.71400		5.886	S
	Female	410	2.0098	.68509			
Academic achievement	Male	242	1.9587	.67433		.651	N.S
	Female	410	1.9244	.63449			

Note: At 5% level of significance, for 650 df, the table value of 't' is 1.96

From the table 1.3, it is reveal that the calculated't' value for the dimensions of metacognition like planning, monitoring and evaluating are more than 0.05 and so are not significant at 5% level. It means that there is no significant difference in the metacognition of higher secondary scheduled caste students due to their gender.

Hence the formulated null hypothesis, "There is no significant difference between metacognition of higher secondary scheduled caste students due to their gender to which they belong" is accepted. Thus, there is significant difference between male and female higher secondary scheduled caste students in their metacognition.

While comparing the mean scores of male higher secondary scheduled caste students (1.6777 and 5.886) have better than the female students (2.0098 and 5.824) in their metacognition. This may be due to the fact that male students acquire practical knowledge through action, memory and reasoning. With the knowledge, they can think beyond. They wish to expose themselves powerful, talented and energetic in the presence of others.

Hence the formulated null hypothesis, “there is no significant difference between academic achievement of higher secondary scheduled caste students with reference to their due to their gender” is accepted. It means that there is no significant difference between academic achievement of higher secondary scheduled caste students with reference to their gender.

Table 1.4
Relationship of metacognition and academic achievement of higher secondary scheduled caste students in their gender

Variables	r - value	Remarks
Metacognition Vs Gender	0.225	S
Academic Achievement Vs Gender	0.026	N.S

Note: 1% level of significance for (652) df, the table value of r is 0.081. 5% significance for (652) df, the table value of r is 0.062

The table 1.4 reveals that the calculated ‘r’ value for Metacognition and gender are less than 0.01 and are significant at 1% level. The calculated ‘r’ value for Metacognition and gender are less than 0.05 and significant at 5% level. All these are having positive correlation and significant at 5% and 1% level. This may be due to the fact that the students with certain qualities which are essential in planning the activities, monitoring the outgoing and make them cheerful. They grow and reveal evaluating the skill which has applied in their learning. It helps to acquire the skill of memorizing the concept and high achievement in academic.

Hence the formulated null hypothesis, “there is no significant relationship between the dimensions of Metacognition and the academic achievement of higher secondary scheduled caste students” is rejected.

The calculated ‘r’ value academic achievement and gender are less than 0.01 and are significant at 1% level. The calculated ‘r’ value for academic achievement and gender are less than 0.05 and significant at 5% level. All these are having negative correlation and significant at 5% and 1% level. Hence the formulated null hypothesis, “there is no significant relationship between academic achievement and gender of higher secondary scheduled caste students” is accepted.

Table 1.5
Impact of metacognition and academic achievement of higher secondary scheduled caste students in their gender

Variables	r-value	df	F-value	Remarks
Metacognition Academic Achievement	0.059	650	2.234	S

Note: 1% level of significance for (650) df, significant at 0.01 level

The table 1.5 reveals that, the calculated ‘r’ value is less than 0.01 and it is significant at 1% level. Hence the formulated hypothesis “there is no significant impact of metacognition and academic achievement of higher secondary scheduled caste students” is rejected.

Further it is observed that metacognition impact academic achievement of higher secondary scheduled caste students. This may be due to the fact that their systematic learning and the broad sense of cognitive thinking gives a proper way to the right path which gives constant success in their academic achievement. It helps them to resist their temptations and distractions to achieve their destiny.

Suggestions for further Research

The investigator suggests the following topics for further research based on investigation.

- ❖ A study on relationship between metacognition and academic achievement of higher secondary scheduled caste students.
- ❖ The present study can be conducted on other levels of education – secondary schools and colleges.
- ❖ The same study can be extended to the other districts of the state to get more generalized findings.
- ❖ Metacognition and academic achievement of higher secondary teachers may be studied.
- ❖ A comparative study of different states can be done to study metacognition level of students and verbal linguistics ability of students from different age groups and culture.
- ❖ In the present investigation a few of the important variables are studied. In future one can go for an in-depth analysis by taking different personality variables, other socio-cultural variables, which are likely to be related with resilience and its enhancement.

Recommendations

- ❖ Cognitive skill should be developed through encouraging the students and reward them when they perform better. Proper training should be given to the students to develop their cognitive skill. And also the teachers must be given practical work related to develop their cognitive skill.
- ❖ Teachers should set an example to students in their metacognition skill by maintaining proper planning, monitoring and evaluating ability. They should conceal the expression and have a positive attitude to life and profession which will go a long way to help in the student's academic achievement.
- ❖ Curriculum may be so designed as to foster metacognition among students. For this purpose, curriculum may be organized on the basis of concepts rather than facts. Curriculum can be made quite flexible and make provision for studying and working without gender bias.
- ❖ Higher secondary school students should be provided with a creative environment to explore in their metacognition skill.
- ❖ The teachers should change their teaching method by adopting novel and innovative methods of teaching. This will improve their confidence and competence level. In order to know the latest teaching methods and strategies, the teachers should be given training programmes highlighting the latest teaching techniques.
- ❖ Some of the experienced teachers could be trained as master trainers to conduct seminars, workshops for the newly recruited teachers as resource persons to improve in their metacognition skill and academic achievement.
- ❖ Teachers can motivate the students to read books their own along with subject books. Teachers should not be much interference in the students' creative work that can prove their potentialities without any stress and strain. Co-curricular activities like elocution, essay writing and poem writing competition may be organized in schools in regular intervals may improve the student's metacognitive skill. It leads to their high academic achievement.

- ❖ Every individual has his or her own profile, which cannot be or should not be compared with other. The comparison of the child with their siblings or peers have a devastating effect on the profile of the individual. The parents are the role model for their children. The parents should always appreciate their child when the child asks a sensible question or he/she attains a good score in his/her studies. So they must be careful with their behaviour in front of their children. It helps the students in their broad thinking and planning of achievement.

Conclusion

The study has highlighted that metacognition and academic achievement of higher secondary scheduled caste students are at high level. Hence all possible effective measures should be taken to raise their potentialities. The study also revealed that father's education, occupation and monthly income encouraged to students at high level that of mothers. Hence fathers of students of higher secondary school should be made to spend more time with their children and give guidance and encouragement to the extent possible. There should be a healthy cordial relationship between parents and students in order to help and encourage their metacognitive skill maintenance in their academic achievement in a positive way.

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