

A Study of Metacognition Awareness and Achievement Motivation in Higher Secondary School Students

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Guest Editor: Dr. Anita Handore

Abstract:

Metacognition is the ability to reflect upon, understand and control one's learning. Whereas, Achievement motivation is the constant pursuit to achieve excellence. Although, there has been plenty of research regarding the Metacognition Awareness and Achievement Motivation w.r.t. different age groups, the research with regard to distinct streams with age group of 15-16 yr. has been neglected so far. Therefore, the present study was conducted to compare and examine the relationship between metacognition awareness and achievement motivation in higher secondary school students (15-16 yr.) from humanities and science stream. Tools such as Meta-cognitive Awareness Inventory (MAI) and Deo Mohan Achievement Motivation, (n-Ach) were administered to the sample of 66 students of both streams. It was found that there was positive correlation between Metacognition Awareness and Achievement Motivation. Moreover, the students of both streams differed on both the dimensions, for Metacognition Awareness and Achievement Motivation with values, ($t'=3.14$) and ($t'=0.48$) respectively. As a part of correlational findings metacognition awareness and achievement motivation were moderately correlated with each other for humanities higher secondary school students ($r'=0.27$), whereas for the science higher secondary school students there exists high correlation as they are positively correlated with each other ($r'=0.72$). Thus with an attempt to focus on psychological causal factors, the sample survey significantly proves the difference and relationship amongst the limited sample size and also comparatively covering a smaller geographical area. This study will focus on assessing and examining the metacognition awareness and achievement motivation with varied sample which will be helpful in the evaluation of various educational programmes and activities in educational settings.

Keywords: Psychology, Meta-cognition, MAI, Achievement Motivation, n-ach

Article History: Submitted: 08th May, 2020, Revised: 14th May, 2020, Accepted: 20th May, 2020,
Published: 30th June, 2020.

I. INTRODUCTION

Education is the process of developing the capabilities and potentials of individuals. We can achieve literacy, develop academic achievement and quality education with the support of good teachers and their teaching proficiency only. It is considered that teacher should accept and adopt new strategies, techniques and approaches in their teaching for enhancing the cognition and achievement of student. Till date, researchers in the field of educational psychology have investigated number of variables in their relationship with respect to the academic performance[3]. It is found that two variables i.e. metacognition awareness and achievement motivation are of particular interest to researchers, [5] they have reported the metacognition as the knowledge which one has about their own cognitive processes. It is the ability to control one's thinking processes through various strategies, viz. organizing, monitoring, and adapting. As well it is the ability to reflect upon the tasks or processes to undertake and utilise the appropriate strategies necessary for daily interactions.[2] has conducted a work to study the effect of metacognition, motivation, locus of control, self, and type of institution with the Sample of 1050 students of 10th class of two tehsils of Jammu district.

Tools used in study of metacognition was developed by the investigator, Locus of Control Scale developed [2] and was re

standardized by the investigator, Achievement motivation [2], Home Environment Inventory [2]. Findings of the study revealed that the level of metacognition, motivation, self-efficacy, locus of control and home environment was better in girls and students of rural area. Furthermore, [10] investigators have carried out the study to examine the Meta cognitive ability of secondary school students in relation to their self-concept, achievement motivation and social status. Investigator studied Belagavi district secondary school student's opinions in relation to Meta cognitive ability with the sample of 400 secondary school students of 10th class of ten talukas of Belagavi district. It was revealed that the Mean and SD of Meta cognitive ability scores students (boy and girl) of secondary schools were identical.[13] The researchers examined the Metacognitive Awareness Inventory (MAI) [11] to determine how it relates to broad and single measures of academic achievement in college students. The MAI was offered in a total of 15 classes. Correlations were found between the MAI and cumulative GPA as well as end of course grades. Scores on the MAI significantly differ between graduate and undergraduate students. [6] A study on the gender difference and achievement motivation among adolescent school students at N.N. Ramanathan Iyyer high school, Nangavaram,

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Karur district. The study was conducted on 10th standard students of both genders who belonged to same school. 'Z' Test was applied and it is inferred that there is significant difference between genders of the respondents with regard to their achievement motivation.

The term Achievement Motivation was originated from the work of [9] and his colleagues who sought to understand what drives individuals toward achieving excellence [9] described Achievement Motivation (nACH) as an individual's constant pursuit to achieve excellence. He noted this drive inspired individuals to overcome challenges in the way of success. [9] He viewed achievement motivation as an essential component for human development. However, he believed n-ACH was not related to the number of accomplishments, rather it was a measure of an individual's desire to accomplish success. The effect of gender on achievement motivation was studied by [7] with 15 to 17 years old school going 60 adolescents (30 girls and 30 boys) with the hypothesis that there would be no significant difference between gender and the level of achievement motivation and girls will have high achievement motivation in comparison to boys. The tools used for the research was Achievement Motivation Scale (n-Ach). It was found that there was no significant difference between gender and achievement motivation.

Although, there has been plenty of research regarding the Metacognition Awareness and Achievement Motivation w.r.t. different age groups, the research with regard to distinct streams with age group of 15-16 yr. has been neglected so far. Therefore, the present study was conducted to determine the Metacognition Awareness and Achievement Motivation and to find the correlation between Metacognition Awareness and Achievement Motivation in the higher secondary school students with age group (15-16 Yr.) of Humanities and Science stream. Thereby, this work will also contribute to the existing wealth of knowledge in the relationship between metacognition awareness and achievement motivation with regard to two distinct streams.

II. MATERIAL AND METHODS

The current research study aimed to compare two variables that are metacognition awareness and achievement motivation. This is a quantitative research, which uses between group design and correlational design. To conduct this study, we have proceed with the following Hypotheses:

- There will be no significant difference between metacognition awareness in higher school secondary students of Humanities and Science.
- There will be no significant difference between achievement motivation in higher school secondary students of Humanities and Science.
- There is a positive correlation between metacognition awareness and achievement motivation in higher secondary school students of humanities.
- There is a positive correlation between metacognition awareness and achievement motivation higher school secondary students of Science.

Sampling

Purposive sampling method has been used to collect the expected sample. Two tests were administered on the samples with their due consent and confidentiality of the results. Metacognition Awareness was measured by Meta-cognitive Awareness Inventory (MAI). Achievement Motivation was measured by Deo Mohan Achievement Motivation, (n-Ach). After finishing all the data collection, the data were analyzed statistically and the Mean, SD, and 't' score and 'r' were calculated for all selected research variables.

Table.1: Sampling detail

CATEGORY	AGE	SAMPLE SIZE
Humanities Class XI	15-16 years	33
Science Class XI	15-16 years	33

Tools:

1. Metacognition Awareness: Metacognition Awareness was measured Meta-cognitive Awareness Inventory (MAI) by Schraw, G. Dennison, R.S. (1994) contains 52 Yes/No statements. The internal consistency and the test-retest reliability coefficient of the MAI, was found 0.95 for the entire scale.

2. Achievement Motivation: Deo Mohan Achievement Motivation, (n-Ach) by Dr (Mrs.) Pratibha Deo and Asha Mohan. The test has 50 statement based on 5 point rating scale from strongly agree to strongly disagree. The test retest reliability for mixed group is 0.69 over 4 weeks of interval.

III. RESULTS AND DISCUSSION

Table 2: Comparison between means of students of Humanities and Science for the variable Metacognition Awareness

Group	N	Mean	SD	t score
Group A (Humanities students)	33	41.60	5.05	3.14
Group B (Science Students)	33	36.18	8.33	

[* Significance at 0.05% level]

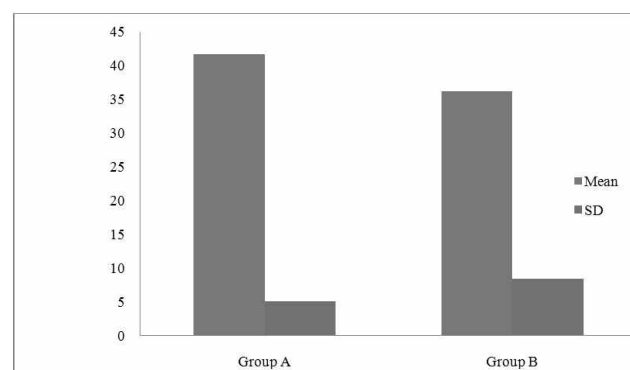


Fig.1. Metacognition Awareness

During this study, it was found that there was no significant difference between metacognition awareness in Humanities and Science higher secondary students. It was observed that the metacognition awareness level was comparatively higher in Humanities students in comparison to Science students, so for this study, the hypothesis was rejected. The researchers have already discussed with the proofs while the test administration and it was found that as compared to the humanities students, science students have faced some problems w.r.t. understanding the questions as, they were much used to scientific and technical terms and unable to relate themselves with the test questions. Also, they have various hobbies which were reflected in the understanding of the test content as well as the score on Metacognition Awareness.

Table.3. Comparison between means of students of Humanities and Science for the variable Achievement Motivation.

Group	N	Mean	SD	t score
Group A (Humanities students)	33	141.02	19.20	0.48
Group B (Science Students)	33	143.45	20.53	

[*Significance at 0.05% level]

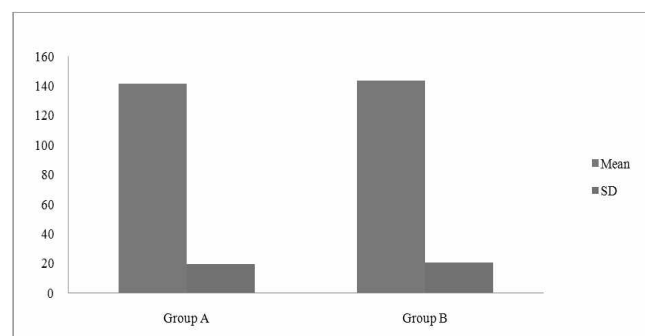


Fig.2. Achievement Motivation

It was found that there was no significant difference between Achievement Motivation in Humanities and Science Secondary Students. As per the 't' value (0.48) it was observed that Achievement Motivation was comparatively low in students of humanities than in the Science students, so for this study, the hypothesis was not rejected.

It can be stated that since both stream students were from the same scholastic background, there was no wide difference in their achievement motivation. Furthermore, they were belonging to almost similar family background, which was found to affect their motivation level resulting no difference. Since a higher secondary class is the turning point of a student's life, they should be motivated to strive for better outputs despite the streams.

Table 4. Relation between Metacognition Awareness and Achievement Motivation of Humanities students.

Details	N	Mean	SD	r
Metacognition awareness	33	41.60	5.05	0.27*
Achievement motivation	33	143.45	20.53	

[*Significance at 0.01% level]

It was revealed that there was a positive correlation between Metacognition Awareness and Achievement Motivation in higher secondary school students of Humanities. Table 4. Depicts 'r' value between Metacognition Awareness and Achievement Motivation in Humanities higher secondary school students. The ($r=0.27$, $p>0.01$) which have been proved to be significant but to a moderate level, which means the hypothesis that there exists a positive correlation between meta cognition awareness and achievement motivation in higher secondary school students of humanities has been accepted.

In the present sample the class of Humanities have more females than males, it can be said that females being good in multitasking have average level of both Metacognition Awareness and Achievement Motivation which might have reflected in the results.

Table 5. Relation between Metacognition Awareness and Achievement Motivation of Science students.

Details	N	Mean	SD	r
Metacognition awareness	33	36.18	8.33	0.72*
Achievement motivation	33	141.02	19.02	

[Significance at 0.01 level]

It was found that there was a positive correlation between Metacognition Awareness and Achievement Motivation in higher secondary school students of Science.

Table 5. Depicts 'r' value between metacognition awareness and achievement motivation in higher secondary school students of Science. The ($r=0.72$, $p>0.01$) which have been proved to be significant to a high level, which means the hypothesis there exists a positive correlation between meta cognition awareness and achievement motivation in higher secondary school students of Science has been accepted. The reason for a high positive relation between Metacognition Awareness and Achievement Motivation may be due to the conditioned belief that science students have to be excellent and have to score good marks for their future, which motivates them to know about their strengths and weaknesses, ultimately enabling them to improve on the same and thereby enhance their academic performance, which can be referred and complemented with the study of [13] showing the similar result.

IV. CONCLUSIONS

It can be concluded that the hypothesis about no significant difference between Metacognition Awareness in higher secondary school students of Humanities and Science has been rejected and the other hypothesis elated with no significant difference between Achievement Motivation in higher secondary school students of Humanities and Science has been accepted. It was found that there was a moderate level of correlation between Metacognition Awareness and Achievement Motivation in higher secondary school students of Humanities. Also, there was a high level of correlation between Metacognition Awareness and Achievement Motivation in higher secondary school students of science. Therefore, this study will give an account of student's awareness of their cognition. This will also help the

researcher to learn and recognise the conceptual change in thinking pattern of the students. Besides, it will assess the way, metacognition helps in the level of achievement motivation. Moreover, this study will focus on how far students can distinguish their strengths and weaknesses by assessing their motivation levels. The relationships between metacognition awareness and achievement motivation could be used to support training programs to teach students metacognitive skills, related strategies and the importance of achievement motivation in one's own academic life. Furthermore, it could be used to alter teaching techniques in schools to meet learning needs of students and thereby improve the teaching skills of the teachers.

V. LIMITATIONS

Following are the limitations which should be considered before applying the results of this study to another setting or further research.

- Present study was conducted on 11th class students, a study can be replicated on students at another level of education and students belonging to other streams also.
- Students participating in the study may not be representative of all adult learners as they were primarily in secondary classes.
- All the instruments used in this study were self-report measures. The researcher assumed that all participants answered the items with honesty and to the best of their knowledge. However, self report measures tend to increase the possibility of response bias and may skew the results of a study. This is an inherent limitation in social science research that may have influenced the present study as well.

These limitations narrow the scope of interpretation of results and yet do not diminish the relevance of these findings

VI. ACKNOWLEDGEMENT

The authors are grateful to Prof. V. N. Suryavanshi, Principal, H.P.T. Arts & R.Y.K. Science College, Nasik as well as Mrs. Medha Gode (Principal) of the Army public school and her colleague Ms Sonia Gussa working there as a school counsellor. We also thank all the participants who have shown their interest and participated in the study.

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