



A study on metacognitive awareness and academic achievement of Higher Secondary level students of Dibrugarh town of Assam, India.

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Abstract

Learning is a process developed within the single individual throughout life. However, in order to be successful learners, reflection, feed-back and an awareness of our knowledge is essential. Metacognition is the awareness of one's own patterns of thinking. Metacognitive awareness helps a learner to be self directed and self regulated. Promoting metacognition begins with building awareness among learners that metacognition exists, differs from cognition and increases academic success. Hence, the present study is undertaken by the investigator to explore the metacognitive awareness and academic achievement of Higher Secondary level Students of Dibrugarh town. A sample of 150 students of XII Standard has been selected by using purposive sampling technique for the investigation. The standardized tool 'Metacognitive Awareness Inventory' (MAI) developed by Schraw and Dennison (1994) has been used as a measure of metacognitive awareness of students. The Descriptive Survey method has been used to collect the data. Mean, SD, 'r', t test were used. It was evident from the present research that, there is a positive correlation between Metacognitive Awareness and Academic Achievement but there is no significant difference between Male and Female students, students of Provincialised and Private Institutions of Dibrugarh Town with respect to Metacognitive Awareness. Therefore, this ability can help the students to gain achievement orientation, either mastery or performance, which in turn results in academic success.

Keywords: Metacognitive Awareness, Academic Achievement, Knowledge of cognition, Regulation of cognition, Higher Secondary level students.

1. Introduction

Self-regulated learner is organized, autonomous, self-motivated, self-monitoring, self-instructing, in short, behaves in ways designed to maximize the efficiency and productivity of the learning process (Lindner and Harris, 1992). This concept of self-regulating of behavior is known as 'METACOGNITION'. Metacognition emerged as an explicit focus of research in psychology (with an initial focus on metamemory) in the early 1970s, but psychologists and educators have long been aware of the knowledge and skills encompassed by this term (Baker & Brown, 1984). John Flavell (1976) offered an early commonly accepted definition of metacognition as "knowledge concerning one's own cognitive processes and products or anything related to them". Metacognition refers to the cognitive control and monitoring of first-order

cognitive processes. 'Meta' means 'beyond' and 'cognition' means, 'to know'. It refers to higher order thinking which involves active control over the cognitive processes engaged in learning.

Schraw and Dennison (1994) categorized the measurement of Metacognitive Awareness of an individual on the basis of two components:

- **Knowledge about Cognition** which involves decisions that helps to identify the task on which one is currently working and the knowledge about the task. This dimension includes Declarative, Procedural, and Conditional knowledge as its sub-dimensions.
- **Regulation of Cognition** occurs when individuals modify their thinking; it is a sequential process that one uses to control cognitive activities, and to ensure that a cognitive goal has

been met. This dimension includes Information Management, Planning, Monitoring, Debugging, and Evaluation as its sub-dimensions.

1.1. Importance of Metacognitive Awareness

- **Metacognition for Reflective education:** Metacognitive skills help learners to reflect on the task at hand and also in action and on action. It also helps learners to reflect on their own reflections, thus leading to learning that is self directed, goal oriented and self evaluated.
- **Metacognition for enhanced thinking:** Besides helping in reflective thinking, Metacognition also enhances analytical and critical thinking thus enabling the learners to gain an appropriate perspective of the learning task at hand.
- **Metacognition for deep learning:** Metacognition does away with surface learning and helps learners go through various loops of learning thereby leading to deeper understanding. The learners are able to know and thereby tap the relevant resources for gaining deep learning.
- **Metacognition for greater accountability:** Students used to metacognitive thinking, assume greater responsibility for their own learning. They are aware of their own strategies and are open to modifications in their thought processes if the situation demands.
- **Metacognition for lifelong learning:** Most students drop out or do not take up further studies, as they lack the skills that are required to be self directed learners. A practice of Metacognitive skills would help in lifelong learning as they get accustomed to goal setting and strategizing their learning.

1.2. Metacognition and Academic Achievement

Metacognitive Awareness is important for academic achievement because this awareness can lead towards meaningful learning, understanding ideas, concepts, problems, where students can meaningfully grasp the material to be studied and improve their academic performance. Many Researches have examined the relation between Metacognition and Academic Achievement. A variety of studies report that students with good metacognition demonstrate good academic performance compared to students with poor metacognition, they consider metacognition as a strong predictor of academic success (Young, A. and Fry, Jan. D, 2008). Also students with high academic

achievement demonstrate high level of metacognitive awareness (Shraw, 1997; Coutinho, 2007).

2. Need and significance of the study

Metacognition is a process with in-depth thinking by oneself in a situation and made effective from the thinking process by oneself (Flavell, 1976). It is defined as the ability of individuals to reflect, understand, and control their own thinking, learning, and acting. It is a cognitive process to control your own thinking activity with planning, monitoring, and evaluating. Also, the development of the learner's metacognition is a process of reflection on the thinking processes of analysis, synthesis, and problem solving, during teaching and learning activities (Brown, 1987).

Researchers conducted by Norehan Zulkipli (2006), V.Devaki and A. Mary Lily Pushpam (2011), Divya Narang and Sarita Saini (2013), Rekha Rani, Punita Govil (2013), A.S. Jagadeeswari and V. Chandrasekaran (2014), Dr. Indu.H and G. Vinitha (2015), showed various impacts of metacognitive awareness and academic achievements among students.

With the criteria in mind, the present study was felt to be the need of the hour and was chosen by the Researcher to find out the opinion of the students which will enable to have awareness of Metacognition towards successful academic achievement among the students.

3. Statement of the problem

The present study is entitled as: "A STUDY ON METACOGNITIVE AWARENESS AND ACADEMIC ACHIEVEMENT OF HIGHER SECONDARY LEVEL STUDENTS OF DIBRUGARH TOWN OF ASSAM, INDIA"

4. Objectives of the present study

- 4.1. To study the Metacognitive Awareness of Higher Secondary level students of Dibrugarh town in relation to their Academic Achievement.
- 4.2. To compare the Metacognitive Awareness of Higher Secondary level students of Dibrugarh town in relation to their
 - i. Gender (Male and Female)
 - ii. Type of management (Private and Provincialised)

5. Hypotheses of the present study

- H₁. There is no significant relationship between Metacognitive Awareness and Academic

Achievement of Higher Secondary level students of Dibrugarh town.

H₂- There is no significant difference between Male and Female students of Higher Secondary level of Dibrugarh town with respect to Metacognitive Awareness

H₃. There is no significant difference between Higher Secondary level students of Provincialised and Private Institutions of Dibrugarh town with respect to Metacognitive Awareness.

6. Methodology

6.1. Method

Descriptive Method was adapted to study the Metacognitive Awareness of Higher Secondary Level Students of Dibrugarh town.

6.2. Tool selected for the study

The Researcher adapted **Schraw and Dennison's (1994) Metacognitive Awareness Inventory (MAI), (with due permission from the Authors)**. The inventory consisted of 52 items, based on five point Likert scale ranging from "strongly agree" to "strongly disagree" and consists of two components: Knowledge of Cognition and Regulation of Cognition. The internal consistency reliability coefficient was 0.9.in its first use by its developers (Schraw and Dennison, 1994) and a correlation 'r' of 0.5.

6.3. Translation of the tool into Assamese language

- For convenience of the study, the scale has also been translated into Assamese language by the Researcher which was administered upon 92 students of Class XII students studying in Dibrugarh town.
- Content Validity was used to determine the

validity of the scale. The Split Half Technique of finding reliability was decided as appropriate by considering the nature and purpose of the scale and the reliability was found to be 0.52.

6.4. Academic achievement

In the present study, for the Academic achievement of the class XII students, marks obtained in the Higher Secondary First year Examination conducted by the Assam Higher Secondary Education Council (AHSEC) of the Academic session 2014-2015, were collected from the respective Administrative office of the concerned Institutions.

6.5. Sample

A sample of 150 students has been selected by using Purposive Sampling technique for the present study and Incidental Sampling Method has been used to collect data from the students studying at Higher Secondary Level Educational Institutions class XII of Dibrugarh town.

6.6. Statistical techniques used

For the present study, Mean, Standard Deviation, Standard Error of Difference, t-test, Co-efficient of Correlation 'r', were used to analyze the data.

7. Analysis, interpretation and discussion of date

7.1 Relationship of Metacognitive Awareness of Higher Secondary Level Students of Dibrugarh Town with respect to Academic Achievement

H₁: There is no significant relationship between Metacognitive Awareness and Academic Achievement of Higher Secondary level students of Dibrugarh town.

Table 1 : Table shows Mean, Standard Deviation, and 'r' and relationship between Metacognitive Awareness and Academic Achievement of Higher Secondary level students of Dibrugarh Town.

Variables	Sample (N)	df	'r'	Inference
Metacognitive Awareness	150	148	0.165	Significant at 0.05 level
Academic Achievement				

The table reveals that computed value of 'r' = (0.165) is greater than the tabulated value of 'r' (0.159), with 148 df, and is considered to be significant at 0.05

level of significance. Thus, the hypothesis is rejected and concluded that there is a positive correlation between Metacognitive Awareness and Academic

Achievement of Higher Secondary level students of Dibrugarh Town.

The result of the present objective supports the results of Mahesh Narayan Dixit (2011), which revealed significant positive correlation between readiness towards the use of Metacognition and Academic Achievement.

7.2 Comparison of metacognitive awareness of higher secondary level students of Dibrugarh town in relation to gender

H₂: There is no significant difference between Male and Female students of Higher Secondary level of Dibrugarh Town with respect to Metacognitive Awareness.

Table 2 : Comparison of Metacognitive Awareness of Higher Secondary level students of Dibrugarh town in relation to gender

Dimensions	Gender	N	Mean	SD	SE _d	df	t value	Inference
Knowledge of cognition	Male	79	68.050	8.447	8.22	148	0.39	Not significant at 0.05 level
	Female	71	67.53	8.031				
Regulation of cognition	Male	79	130.68	24.88	28.39	148	0.27	Not significant at 0.05 level
	Female	71	129.43	32.02				
Metacognitive awareness	Male	79	198.73	24.86	27.5	148	0.39	Not significant at 0.05 level
	Female	71	196.97	30.01				

The table reveals that computed value of 't' were found to be 0.39, 0.27, 0.39 for the dimensions knowledge of cognition and regulation of cognition and overall metacognitive awareness of male and female which are less than the tabulated value of 't' (1.98), with 148 df, and is considered to be not significant at 0.05 level of significance. Thus, the null hypothesis is accepted and concluded that there is no significant difference between Male and Female students of Higher Secondary level students of Dibrugarh Town with respect to Metacognitive Awareness.

The result of the present objective supports the results of Noren Zulkiply (2006) found no significant

difference in Metacognitive Awareness between Male and Female across all academic year. On the contrary, Dr. Indu.H and G. Vinitha (2015) found significant difference in Metacognitive Awareness of students based on Gender.

7.3 Comparison of metacognitive awareness of Higher secondary level students of Dibrugarh town in relation to type of management

H₃: There is no significant difference between Higher Secondary level students of Provincialised and Private Institutions of Dibrugarh Town with respect to Metacognitive Awareness.

Table 3 : Table shows comparison of metacognitive awareness of Higher secondary level students of Dibrugarh town in relation to type of management.

Dimensions	Type of Management	N	Mean	SD	SE _d	df	t value	Inference
Knowledge of cognition	Private	68	68.38	8.311	8.22	148	0.8	Not significant at 0.05 level
	Provincialised	82	67.32	8.181				
Regulation of cognition	Private	68	130.42	24.192	28.39	148	0.133	Not significant at 0.05 level
	Provincialised	82	129.81	31.60				
Metacognitive awareness	Private	68	198.80	23.117	27.75	148	0.37	Not significant at 0.05 level
	Provincialised	82	197.14	30.78				

The table reveals that computed value of 't' were found to be 0.8, 0.133, 0.37 for the dimensions knowledge of cognition and regulation of cognition and overall metacognitive awareness of private and provincialised institutions which are less than the tabulated value of 't' (1.98), with 148 df, and is considered to be not significant at 0.05 level of significance.

Thus, the null hypothesis is accepted and it is concluded that there is no significant difference between Higher Secondary level students of Provincialised and Private Institutions of Dibrugarh Town with respect to Metacognitive Awareness.

The result of the present objective contradicts the results of A.S.Jagadeshwari and V. Chandrasekaran (2014) who found that there is significant difference in the Metacognitive Awareness among Higher Secondary students with regard to Type of Management.

8. Major findings of the study

- 8.1 There is a positive correlation between Metacognitive Awareness and Academic Achievement of Higher Secondary level students of Dibrugarh Town.
- 8.2 There is no significant difference between Male and Female students of Higher Secondary level students of Dibrugarh Town with respect to Metacognitive Awareness.
- 8.3 There is no significant difference between Higher Secondary level students of Provincialised and

Private Institutions of Dibrugarh Town with respect to Metacognitive Awareness.

9. Conclusion

Metacognitive Awareness is central to conceptions of what it means to be educated. Success of every student depends on the academic achievement which is really possible by giving this sort of awareness in metacognition. Therefore, it is clear that Metacognition is a multi-faceted topic of research. In order to achieve observable improvements it is necessary to tailor the metacognitive awareness to the domain and blend it seamlessly into the teaching and learning process. Transposing the findings of the present study in a computational environment still poses big challenges. With no doubt the present study could be considered as a yardstick in promoting the Metacognitive Awareness among the students community. Our understanding of the situated nature of the decisions we need to make in life means that we cannot rely just on our knowledge of how the world works or on our reflections, however rational, of universal laws. Making wise and thoughtful life decisions is the responsibility of each individual and involves self awareness. Thus, metacognition as a higher order thinking ability can enable a person towards enhancing the various spheres of life such as social, economical, political etc. moreover, being aware of one's thought can lead towards new inventions in the various sectors of learning.

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