

Metacognitive Awareness and Academic Achievement of Higher Secondary Level Arts Stream Students of Dibrugarh District, Assam

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Abstract

Metacognition refers to higher order thinking which involves active control over the cognitive processes engaged in learning. Promoting metacognition begins with building awareness among learners that metacognition exists, differs from cognition and increases academic success. Hence, the present study was undertaken by the investigator to explore the metacognitive awareness and academic achievement of Higher Secondary level Students of Arts Stream of Dibrugarh District. A sample of 134 Students of XII Standard was 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 was used to collect the data. Mean, Standard Deviation, 't' test, correlation 'r' have been employed to analyze the data. The finding of the study reveals that there is a positive correlation between Metacognitive Awareness and Academic Achievement, Regulation of cognition and Academic Achievement, but no correlation between Knowledge of cognition and Academic Achievement. There is no significant difference between Higher Secondary level Arts Stream of Students with respect to Gender, Type of management, Locale and Medium of instruction.

Keywords: Metacognition, Metacognitive Awareness, Academic Achievement, Higher Secondary level Arts Stream Students, Knowledge of Cognition, Regulation of Cognition.

I. INTRODUCTION

Metacognition has been one of the most concentrated concepts among researches in the field of psychology. Over the last 40 years, many definitions have been proposed for it. Flavell (1979) conceptualized metacognition as "knowledge and cognition about cognitive phenomena". It can simply be stated as thinking about thinking. Metacognition refers to one's ability to know and regulate cognitive processes. It also describes as the ability to monitor one's performance and chart learning plans based on learning and performance estimate. It is also what we

know about our cognitive processes and how we use this process in order to learn and remember.

Schraw and Dennison (1994) define metacognitive awareness as referring "to the ability to reflect upon, understand, and control one's learning". Their account divides metacognitive awareness into two components, which themselves further divide into subcomponents. **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. *Declarative Knowledge* -It is how learners know about themselves as a learner, about their own weaknesses and strengths, and about their relationships with the tasks that they want to accomplish, such as learning or problem solving. *Procedural Knowledge* -It is to know how and what strategies learners can use to accomplish their tasks. *Conditional Knowledge*- It is to know when and under what conditions learners can use a particular strategy to achieve their goals. **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. *Planning*- It is to set goals and allocate resources before beginning the task. *Information Management Strategies*- It includes skills to process information, such as organizing, elaborating etc. *Comprehension Monitoring*- It entails assessing one's comprehension and learning process, whether the reading materials make sense or not. *Debugging Strategies*- It is to look for help when encountering difficulties. *Evaluation*- It is to assess oneself to see whether he or she has accomplished his/her jobs.

The two components of Metacognitive Awareness can enable to measure and assess an individual with the various aspects of whether decisions can be made to identify the task currently working, as well as to ensure whether a particular goal has been met. Metacognition plays an important role in education because it helps learner to be

capable of to develop a plan, monitor and evaluate how much it's effective, that means metacognition helps the learner to be more involved in learning process which also lead towards academic success.

A. Metacognition and Academic Achievement

Metacognitive awareness affect learning in many ways but especially with respect to the efficient use of limited cognitive resources, strategy use, and comprehension monitoring. Effective academic learning requires high and sustained intellectual efficiency which requires high cognition.

Metacognitive awareness is believed to be very important in the academic environment, as numerous studies have shown that metacognitive awareness is a strong predictor for academic performance in various subjects (Coutinho, 2007). 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 (Schraw, 1997; Coutinho, 2007).

II. NEED AND SIGNIFICANCE OF THE STUDY

Metacognition plays an important role in education because it helps learner to be capable of to develop a plan, monitor and evaluate how much it's effective, that means metacognition helps the learner to be more involved in learning process. A lot of studies report that there is difference in the metacognition of effective learners and ineffective learners, the effective users of metacognition are more strategic, more likely to use problem solving heuristics and better at predicating their test score (Garner, R & Alexander, 1989; Pintrich & DeGroot, 1990).

Researchers conducted by Norehan Zulkiply (2006), V.Devaki and A. Mary Lily Pushpam (2011), Mahesh Narayan Dixit (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 studying in Arts Stream, which will enable to have awareness of Metacognition towards successful academic achievement among the Students.

III. STATEMENT OF THE PROBLEM

The present study is entitled as: “**Metacognitive Awareness and Academic Achievement of Higher Secondary Level Arts Stream Students of Dibrugarh District, Assam**”

IV. OBJECTIVES OF THE PRESENT STUDY

- A. To study the Metacognitive Awareness of Higher Secondary level Arts Stream Students of Dibrugarh District in relation to their Academic Achievement.
- B. To compare the Metacognitive Awareness of Higher Secondary level Arts Stream Students of Dibrugarh District in relation to their:
 - i. Gender (Male and Female)
 - ii. Type of management (Private and Provincialised)
 - iii. Locale (Rural and Urban)
 - iv. Medium of Instruction (Assamese and English)
- C. To study the relationship between Knowledge of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.
- D. To study the relationship between Regulation of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

V. HYPOTHESES OF THE PRESENT STUDY

- H₁. There is no significant relationship between Metacognitive Awareness and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.
- H₂- Male and female Higher Secondary level Arts Stream Students of Dibrugarh District do not differ significantly with respect to Metacognitive Awareness.
- H₃. Higher Secondary level Arts Stream Students studying at Provincialised and Private Institutions of Dibrugarh District do not differ significantly with respect to Metacognitive Awareness.
- H₄. There is no significant difference between Rural and Urban Higher Secondary level Arts Stream Students of Dibrugarh District with respect to Metacognitive Awareness
- H₅. There is no significant difference between Higher Secondary level Arts Stream Students of Assamese medium and English medium of Dibrugarh District with respect to Metacognitive Awareness.
- H₆. There is no significant relationship between Knowledge of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

H₇. There is no significant relationship between Regulation of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

VI. OPERATIONAL DEFINITION

A. Metacognitive Awareness: Metacognitive Awareness refers to awareness of one's own knowledge-what one does and doesn't know-and one's ability to understand, control, and manipulate one's cognitive processes.

Hence, in the present an attempt has been made to study the Metacognitive Awareness of Higher Secondary level Arts Stream Students in relation to various aspects. It is interpreted with the scores obtained in the Metacognitive Awareness Inventory (MAI) constructed and standardized by Schraw and Dennison (1994).

B. Academic Achievement: Academic achievement is the outcome of education-the extent to which a student has achieved their education goals. It represents performance outcomes that indicate the extent to which a student has accomplished specific goals that were the focus of activities in instructional environments, specifically in Educational Institutions.

In the present study, Academic Achievement is interpreted with the marks obtained in the Class XI, Higher Secondary First year Examination conducted by the Assam Higher Secondary Education Council (AHSEC) of the Academic session 2014-2015 of the selected sampled Educational Institutions of Dibrugarh District (Lahowal Block) under the study.

VII. METHODOLOGY

A. Method: Descriptive Method was adapted to study the Metacognitive Awareness of Higher Secondary Level Students of Arts Stream of Dibrugarh District.

B. 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.

For convenience of the study, the scale has also been translated into Assamese language by the Researcher's which was administered upon 92 Students of Class XII Students studying in Dibrugarh District.

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.

C. Academic Achievement: In the present study, for the Academic Achievement of the class XII Students, marks obtained in the Class XI 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.

D. Sample: A sample of 134 Students of Higher Secondary Level of Arts Stream 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 District.

E. 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.

VIII. ANALYSIS, INTERPRETATION AND DISCUSSION OF DATA

A. Relationship of Metacognitive Awareness of Higher Secondary Level Arts Stream Students of Dibrugarh District with respect to Academic Achievement

H₁: There is no significant relationship between Metacognitive Awareness and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

The table No. 1 reveals that computed value of 'r' = (0.22) is greater than the tabulated value of 'r' (0.159), with 132 df, and is considered to be significant at 0.05 level of significance. Thus, the hypothesis "There is no significant relationship between Metacognitive Awareness and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District" is rejected and concluded that there is a positive correlation between Metacognitive Awareness and Academic Achievement of Higher Secondary level Arts stream Students of Dibrugarh District.

B. Comparison of Metacognitive Awareness of Higher Secondary Level Arts Stream Students of Dibrugarh District in Relation to Gender

H₂: Male and female Higher Secondary level Arts Stream Students of Dibrugarh District do not differ significantly with respect to metacognitive awareness.

The table No. 2 reveals that computed value of 't' was found to be 0.586 of male and female which is smaller than the tabulated value of 't' (1.98), with 132 df, and is considered to be not significant at 0.05 level of significance. Thus, the null

hypothesis is accepted and is concluded that there is no significant difference between Male and female Higher Secondary level Arts Stream Students of Dibrugarh District with respect to Metacognitive Awareness.

C. Comparison of Metacognitive Awareness of Higher Secondary Level Arts Stream Students of Dibrugarh District in Relation to Type of Management

H₃: Higher Secondary level Arts Stream Students studying at Provincialised and Private Institutions of Dibrugarh District do not differ significantly with respect to Metacognitive Awareness.

The table No.3 reveals that computed value of 't' was found to be 1.77 of Private and Provincialised which is smaller than the tabulated value of 't' (1.98), with 132 df, and is considered to be not significant at 0.05 level of significance. Thus, the null hypothesis is accepted and is concluded that there is no significant difference between Higher Secondary level Arts Stream Students studying at Private and Provincialised Institutions of Dibrugarh District with respect to Metacognitive Awareness.

D. Comparison of Metacognitive Awareness of Higher Secondary Level Arts Stream Students of Dibrugarh District in Relation to Locale

H₄: There is no significant difference between Rural and Urban Higher Secondary level Arts Stream Students of Dibrugarh District with respect to Metacognitive Awareness

The table No. 4 reveals that computed value of 't' was found to be 1.24 of Students of Rural and Urban Institutions which is smaller than the tabulated value of 't' (1.98), with 132 df, and is considered to be not significant at 0.05 level of significance. Thus, the null hypothesis is accepted and is concluded that there is no significant difference between Rural and Urban Higher Secondary level Arts Stream Students of Dibrugarh District with respect to Metacognitive Awareness.

E. Comparison of Metacognitive Awareness of Higher Secondary Level Arts Stream Students of Dibrugarh District in Relation to Medium of Instruction.

H₅: There is no significant difference between Higher Secondary level Arts Stream Students of Assamese medium and English medium of Dibrugarh District with respect to Metacognitive Awareness.

The table No.5 reveals that computed value of 't' was found to be 1.24 of Students of Assamese medium and English medium Students, which is smaller than the tabulated value of 't' (1.98), with 132 df, and is considered to be not significant at 0.05 level of significance. Thus, the null hypothesis is accepted and is concluded that there is no significant difference between Higher Secondary level Arts

Stream Students of Assamese medium and English medium of Dibrugarh District with respect to Metacognitive Awareness.

F. Relationship between Knowledge of cognition and Academic Achievement of Higher Secondary Level Arts Stream Students of Dibrugarh District

H₆: There is no significant relationship between Knowledge of cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

The table No. 6 reveals that computed value of 'r' = (-0.032) is smaller than the tabulated value of 'r' (0.159), with 132 df, and is considered to be not significant at 0.05 level of significance. Thus, the hypothesis "There is no significant relationship between Knowledge of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District." is accepted and concluded that there is no significant relationship and there is a very low and negligible correlation between Knowledge of cognition and Academic Achievement of Higher Secondary level Students studying at Arts stream.

G. Relationship between Regulation of Cognition and Academic Achievement of Higher Secondary Level Arts Stream Students of Dibrugarh District

H₆: There is no significant relationship between Regulation of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

The table No. 7 reveals that computed value of 'r' = (0.218) is greater than the tabulated value of 'r' (0.159), with 132 df, and is considered to be significant at 0.05 level of significance. Thus, the hypothesis "There is no significant relationship between Regulation of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District." is rejected and concluded that there is a positive correlation between Regulation of cognition and Academic Achievement of Higher Secondary level Students studying at Arts stream.

IX. MAJOR FINDINGS OF THE STUDY

- A. There is a positive correlation between Metacognitive Awareness and Academic Achievement of Arts Stream Higher Secondary level Students of Dibrugarh District.
- B. There is no significant difference between Male and female Higher Secondary level Arts Stream Students of Dibrugarh District with respect to Metacognitive Awareness.
- C. There is no significant difference between Higher Secondary level Arts Stream Students studying at Private and Provincialised Institutions of Dibrugarh District with respect to Metacognitive Awareness.

- D. There is no significant difference between Rural and Urban Higher Secondary level Arts Stream Students of Dibrugarh District with respect to Metacognitive Awareness.
- E. There is no significant difference between Higher Secondary level Arts Stream Students of Assamese medium and English medium of Dibrugarh District with respect to Metacognitive Awareness.
- F. There is no significant relationship and there is a very low and negligible correlation between Knowledge of cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.
- G. There is a positive correlation between Regulation of cognition and Academic Achievement of Higher Secondary level Arts stream Students of Dibrugarh District.

maintenance of cognitive process. Students who identify appropriate learning strategies in the right context are using metacognition. Use of these strategies has been associated with successful learning, and to find what the question means and how it may be dealt with. The use of metacognition helps an individual to be a good learner. Metacognitive strategies assist us to become more efficient and powerful in our learning because they help us to find information, evaluate when we need additional resources, and understand when to apply different approaches to solve the problems. When children begin to master these strategies and learn when, how, and why to use them - they are able to learn more effectively and intentionally. Metacognitive Awareness help Students assess the task, plan an appropriate approach, apply selected strategies and monitor progress, evaluate, adjust their strategies. This goal must have a credible and enduring presence in the established curriculum and in assessments.

X. CONCLUSION

Metacognition enables Students to benefit from instruction, influences the use and

TABLE NO. 1:

Table shows Mean, Standard Deviation, and ‘r’ and relationship between Metacognitive Awareness and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

| SL. NO | VARIABLES | N | M | SD | df | ‘r’ | INFERENCE |
|--------|-------------------------|-----|--------|-------|-----|------|-------------------------------|
| 1 | Metacognitive Awareness | 134 | 198.22 | 27.77 | 132 | 0.22 | Not Significant at 0.05 level |
| 2 | Academic Achievement | | 43.54 | 10.77 | | | |

TABLE NO.2:

Comparison of Metacognitive Awareness of Higher Secondary level Arts Stream Students of Dibrugarh District in relation to Gender

| Dimensions | Gender | N | Mean | SD | SE _D | df | t value | Inference |
|-------------------------|--------|----|--------|-------|-----------------|-----|---------|-------------------------------|
| Metacognitive awareness | Male | 43 | 197.09 | 24.91 | 2.88 | 132 | 0.586 | Not Significant at 0.05 level |
| | Female | 91 | 198.76 | 29.14 | | | | |

TABLE NO: 3

Table shows Comparison of Metacognitive Awareness of Higher Secondary level Arts Stream Students of Dibrugarh District in relation to Type of Management.

| Dimensions | Type of Management | N | Mean | SD | SE _D | df | t value | Inference |
|---------------|--------------------|----|-------|-------|-----------------|----|---------|-------------------------|
| Metacognitive | Private | 52 | 201.5 | 20.64 | | | | Not Significant at 0.05 |

| | | | | | | | | |
|-----------|----------------|----|--------|-------|------|-----|------|-------|
| awareness | Provincialised | 82 | 196.14 | 31.41 | 3.02 | 132 | 1.77 | level |
|-----------|----------------|----|--------|-------|------|-----|------|-------|

TABLE NO: 4
Table shows Comparison of Metacognitive Awareness of Higher Secondary level Arts Stream Students of Dibrugarh District in relation to Locale.

| Dimensions | Locale | N | Mean | SD | SE _D | df | t value | Inference |
|-------------------------|--------|----|--------|-------|-----------------|-----|---------|-------------------------------|
| Metacognitive awareness | Rural | 98 | 199.77 | 29.67 | 4.63 | 132 | 1.24 | Not Significant at 0.05 level |
| | Urban | 36 | 194 | 21.59 | | | | |

TABLE NO: 5
Table shows Comparison of Metacognitive Awareness of Higher Secondary level Arts Stream Students of Dibrugarh District in relation to Medium of Instruction.

| Dimensions | Medium of Instruction | N | Mean | SD | SE _D | df | t value | Inference |
|-------------------------|-----------------------|----|--------|-------|-----------------|-----|---------|-------------------------------|
| Metacognitive awareness | Assamese | 98 | 199.77 | 29.67 | 4.63 | 132 | 1.24 | Not Significant at 0.05 level |
| | English | 36 | 194 | 21.59 | | | | |

TABLE NO. 6:
Table shows Mean, Standard Deviation, and ‘r’ and relationship between Knowledge of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

| SL. NO. | VARIABLES | N | MEAN | SD | df | ‘r’ | INFERENCE |
|---------|------------------------|-----|-------|-------|-----|--------|-------------------------------|
| 1. | Knowledge of cognition | 134 | 62.41 | 11.25 | 132 | -0.032 | Not Significant at 0.05 level |
| 2. | Academic Achievement | | 43.54 | 10.77 | | | |

TABLE NO. 7:
Table shows Mean, Standard Deviation, and ‘r’ and relationship between Regulation of Cognition and Academic Achievement of Higher Secondary level Arts Stream Students of Dibrugarh District.

| SL. NO. | VARIABLES | N | MEAN | SD | df | ‘r’ | INFERENCE |
|---------|-------------------------|-----|-------|-------|-----|-------|---------------------------|
| 1. | Regulation of cognition | 134 | 35.80 | 30.20 | 132 | 0.218 | Significant at 0.05 level |
| 2. | Academic Achievement | | 43.54 | 10.77 | | | |

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