A Correlational Study Of Metacognition

From Educational Perspective

Abstract

Metacognition is an important concept in educational context as it is related to the learner’s awareness and regulation of the underlying cognitive processes. Hence, the present research deals with ‘metacognition from educational perspectives’.

The two key concepts of this study are metacognition and educational perspectives.

In this study the first concept ‘metacognition’ is studied in terms of ‘metacognitive awareness’ or self-perception of one’s ability to reflect upon, understand and control one’s learning. The second concept of the study is ‘educational perspectives’ and this phrase includes: academic self-concept, hemispheric dominance, learning styles, academic achievement and gender of students.

A preliminary literature survey was conducted and a statement of the problem was formulated as: ‘A study of metacognitive awareness and its relation with academic self-concept, hemispheric dominance, learning styles, academic achievement and gender.’ Based on the problem identified, objectives of the study and hypotheses were formulated.

A descriptive, correlational research design was used to study objectives 1 to 4 which examine relations between metacognitive awareness and selected variables, i.e., academic self-concept(ASC), hemispheric dominance(HD), learning styles(LS) and
academic achievement (AA). A two-group design was used to study objective 5 that examines gender differences (GD) in metacognitive awareness (MA) of students.

The geographic location of the selected population is Roorkee, an upcoming city in Haridwar district, Uttarakhand, India. Population for the present study consists of all class eleven students enrolled in English medium schools affiliated to Central Board of Secondary Education [CBSE Board] during the academic year 2009-2010 in Roorkee, India.

The sample of the study consisted of three hundred and twenty six class Eleven students. These students are from the selected six Central Board of Secondary Education [CBSE] English Medium schools in Roorkee City, Uttarakhand, India. There were 164 male and 162 female students in the sample in the age range of 15 to 17 years.

The four standardized tools that were used to collect from the selected sample are:

- Metacognitive Awareness Inventory [MAI] developed by Schraw & Dennison (1994).
- Academic Self Concept Scale [ASCS] developed by Reynolds [1988]
- Index of Learning Styles [ILS] developed by Felder and Soloman’s [1997]
- Styles of Learning and Thinking [SOLAT] developed by Torrance et al. [1988].
In addition, a Personal Data Sheet was used to collect basic demographic data. The data was collected using the above mentioned four standardized questionnaires on a selected sample during the academic year of 2009-2010.

The obtained data was coded, entered into MS Excel and exported to SPSS files for further statistical analysis. Data was checked for missing values and outliers. Tests of normality were applied. As the data is normally distributed, parametric statistics were applied for further analysis. Data was analysed for both descriptive and inferential statistics.

Pearson’s product moment correlation coefficient was used to test hypotheses 1 to 4, which were proposed to test the correlations between metacognitive awareness and academic self-concept, hemispheric dominance, learning styles and academic achievement.

Significance of difference between means of two independent groups (t-test) was used to test hypotheses 5, which was proposed to measure the differences between boys and girls on metacognitive awareness.

The results on hypothesis-1 testing show that there is a positive correlation (0.313**) between metacognitive awareness and academic self-concept. Hence research hypothesis-1 is accepted. Results for hypothesis-2 show that there is significant correlation between whole brain orientation and metacognitive awareness (0.143*) However, there are no significant correlations between left
hemispheric dominance and metacognitive awareness, as well as right hemispheric dominance and metacognitive awareness, hence the null hypothesis-2 is accepted.

The results for hypothesis -3 show that there are no significant correlations between learning styles and metacognitive awareness. The results for hypothesis-4 show that there is positive correlation (0.173**) between academic achievement and metacognitive awareness. Hence the research hypothesis 4 is accepted.

Hypothesis-5 was tested to find differences between male and female groups of the sample. The data obtained on the two groups is subjected to t-test to examine gender differences in metacognitive awareness and the results show that there is significant difference (t-value 2.64**) between males and females on metacognitive awareness. Hence the hypothesis 5 [H5o] is rejected. Females have better metacognitive awareness than males.

Findings:
1. There is positive correlation between metacognitive awareness and academic self-concept of the students.
2. There is positive correlation between whole brain dominance and metacognitive awareness.
3. There is no correlation between left hemispheric dominance and metacognitive awareness.
4. There is no correlation between right hemispheric dominance and metacognitive awareness.

5. There is no correlation between learning styles and metacognitive awareness.

6. There is positive correlation between academic achievement and metacognitive awareness.

7. Females have better metacognitive awareness than males.

**Implications of the Research**

The findings of the present study provide empirical evidence about metacognition and its relation with other critical variables in Indian educational context. This would contribute to the scientific knowledge in the field of metacognition. The educational implications of this study are discussed in this section.

The findings of the study provide information to school personnel, administrators, and policy makers about the complex relationships between academic self-concept, hemisphericity, learning styles, academic achievement and metacognitive awareness.

**Conclusions:**

Students with higher levels of metacognitive awareness also have high levels of academic self-concept, whole-brain thinking orientation and high academic achievement. Female students have higher levels of metacognitive awareness than
male students. Metacognitive awareness is not associated with left or right hemispheric dominance and learning styles.

Overall, this research shows that metacognitive awareness is an important construct in higher secondary education; as high levels of metacognitive awareness are associated with high levels of academic self-concept and academic achievement of students. This information may be helpful for educators in planning appropriate curriculum, instructional methods and educational policies that promote metacognitive learning at higher secondary level of education.

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