

METECOGNITIVE SKILLS IN RELATION TO SEX, PARENTAL EDUCATION AND ACHIEVEMENT OF ELEMENTARY SCHOOL STUDENTS

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ABSTRACT

Present study examined metacognitive skills in relation to sex, parental education and achievement of elementary school students. The study used sample of 63 elementary school students from different blocks of Cuttack district, Odisha. Self developed metacognitive scale was used for the collection of data. Findings indicated no significant difference in metacognitive skills in respect to sex and significant difference in metacognitive skills in respect to parental education and achievement. Implications for elementary students, parents, teachers, method of teaching and curriculum were suggested

Keywords: Metacognitive skills, Elementary School Students

INTRODUCTION

Education is the only wealth which cannot be robbed. It builds both internal and outer personality and character, strengthens our mind and augments our pool of knowledge. In the present world 'education' and 'national' growth are closely related. Elementary education has specific goals that make it an exceedingly important component of an educational system. Universal elementary education has been at the centre of attention in discussion of both democracy and development in the last decade. Basic literacy skills of reading, writing, and arithmetic are no longer sufficient. Our students need to master those basic skills as well as read critically, write persuasively, think and reason logically, solve complex problems. A successful student must be adapt at managing information, finding, evaluating and applying new content understanding with great flexibility. In other words, students should develop metacognitive skills along with other study skills to become a successful learner. 'Metacognition' is one of the latest buzz words in educational psychology, but what exactly is metacognition? The length and abstract nature of the word makes it sound intimidating, yet it is not as daunting a concept as it might seem. We engage in metacognitive activities every day. 'Metacognition' is simply defined as 'thinking about thinking'.

The term metacognition has been part of the vocabulary of educational psychologists for the last three decades, but the concept exists for as long as humans have been able to reflect on their cognitive experiences. The concept of metacognition was introduced by Flavell in 1970. According to Flavell metacognition, as the knowledge about and regulation of one's cognitive activities in learning processes. According to Brown (1980) Metacognition refers to one's knowledge and control of own cognitive system. Schraw & Sperling-Dennison (1994) defined metacognition as the ability to reflect upon, understand and control one's learning. Baker & Brown (1987) defined metacognition as the knowledge and control a child has over his own thinking and learning activities, including reading. Metacognition encompasses two elements: Metacognitive knowledge and Metacognitive skills. Flavell and Wellman (1977) defines metacognitive knowledge refers to the individual's declarative knowledge of learning

strategies, person and task characteristics which are relevant mastering a specific situation. Metacognitive skills refer to the control, monitoring, and self regulation activities that take place when learning and solving problems (Brown, 1978). Flavell (1976) defines metacognition as "active monitoring and consequent regulation and orchestration of cognitive process to achieve cognitive goals". Metacognition refers to higher order thinking which involves active control over the cognitive processes engaged in learning. Flavell (1979) argued that learners must learn to use their metacognitive skills and self-directive capabilities to steer their cognition and feelings during learning performance. Flavell (1987) defines metacognition as knowledge and cognition about cognitive objects and as 'thinking about thinking'. According to Winne and Perry (2000) metacognition refers to the awareness that learners have about their general academic strengths, weaknesses and of the cognitive resources they can apply to meet the demands of particular tasks and to their knowledge and skill about how to regulate engagement in tasks to optimize learning processes and outcomes. Metacognitive skills concern the procedural knowledge that pertains to the actual regulation of, and control over one's cognitive processes and learning activities. The metacognitive skill component refers to the control of an individual's ongoing cognitive processes. Brown (1980) referred to the other component of metacognition as executive control processes, which included planning, monitoring, and evaluation of individual's cognitive and affective functioning. Thus, these self regulatory strategies entail the operation of specific mental processes by which individuals organize and monitor their thinking. The prevailing self regulated models also include performance strategies that improve learning or other cognitive functions by helping learners to correct their study behaviors and to repair deficits in their understanding. With planning strategies, a learner plans one's use of cognitive strategies, such as activating prior knowledge, organizing the material to be read, and so on, whereas metacognitive activities refer to the monitoring of comprehension when learners check their understanding against some self or other-set goals. The monitoring process suggests the need for a regulation process. This suggests that a metacognitive skill includes knowledge of cognition and regulation of cognition. When students use declarative, procedural and conditional knowledge and planning, monitoring and evaluating they are said to be consciously engaged in using metacognitive skills. On the other hand, metacognitive skill will also become automatic without much conscious awareness resulting from practice and habitual use and it will become conscious mainly in new or difficult situations.

RATIONALE OF THE STUDY

Globalized ideology brings rapid transformation in the structure and pattern of education. The emerging society needs new ideas, modern technology and knowledge explosion, so there is a need to develop metacognitive skills among the students as well as the teachers. It is important to study metacognitive activity and development to determine how students can be taught to better apply their cognitive resources through metacognitive control. Basic literacy skills of reading, writing, and arithmetic are no longer sufficient. Our students need to master those basic skills as well as read critically, write persuasively, think and reason logically, solve complex problems. In recent years, metacognition is regarded as an important component in the teaching learning process. Metacognition enables us to be successful learners and metacognition plays a critical role in successful learning. In many research studies it was found that metacognitive processes promote meaningful learning, or learning with understanding. (Thomas & McRobbie, 2001). In the constantly changing technological world when, not only is it impossible for individuals to acquire all existing knowledge, but it is also difficult to envisage what knowledge will be essential for the future. The development of metacognitive abilities that will enable the student to study any desirable knowledge in the

future becomes essential. In this context, researches on metacognitive skills and its effect on student's school performance gain significance. Cross and Paris (1988) describe an intervention targeted at improving the metacognitive skills and reading comprehension of 171 students in third and fifth grades. Students in both grades made significant gains relative to comparison of students with regard to awareness about reading in three areas: evaluation of task difficulty and one's own abilities, planning to reach a goal, and monitoring process towards the goal. Anthony (1996) studied the active learning in a constructivist framework. Examples of their strategic learning behaviors illustrate that having students involved in activities such as discussions, question answering, and seatwork problems does not automatically guarantee successful knowledge construction. The nature of students' metacognitive knowledge and the quality of their learning strategies are seen to be critical factors in successful learning outcomes. Kuhn (1999) reported that meaningful learning, which, as a result of it students improve their ability to apply what they have learned in a new context, is one of the goals of teaching. Thomas & McRobbie, (2001) found that metacognitive skills promote meaningful learning, or learning with understanding. Jacobs (2004) studied a classroom investigation of the growth of metacognitive awareness in kindergarten children through the writing process. The study provides a model that could be used in classrooms to help children in the development of their growing metacognition and writing in an authentic learning environment. Vukman (2005) studied the developmental differences in metacognition and their connections with cognitive development in adulthood. Differences in performance were statistically significant in all problems: the best results in interpolation and divergent production problems were achieved by the younger adult group and the best performance on most dialectical everyday problems was found in the mature adults' group. Annevirta & Vauras (2006) found that children with initially high metacognitive knowledge had better metacognitive skills in problem-solving tasks during the 1st 2 school years, whereas the self-guided behavior of children with lower metacognitive knowledge resembled more the type of adult-dependent behavior typical of young children as late as the 2nd grade. However, there was no clear developmental relationship between metacognitive knowledge and metacognitive skills. Maqsood (2007) found that metacognitive ability tends to associate positively with academic attainment of high school pupils. Mango (2013) revealed that students in cooperative learning received higher metacognitive awareness compared to other 101 groups.

The above discussion indicates that metacognition and its correlates have been studied by many researchers both in India and Abroad. Research findings are not similar with regards to process of metacognitive development and its effects on other variables. In this background, following question was raised for investigation.

- Is there any significant difference in the metacognitive skills of elementary school students with reference to sex, parental education and level of achievement?

OPERATIONAL DEFINITION

Metacognitive Skills: Metacognitive skills concern the procedural knowledge that pertains to the actual regulation of, and control over one's cognitive processes and learning activities (Flavell, 1992). It refers to the control, monitoring, and self-regulation activities that take place when learning and solving problems (Brown, 1978). In the present study, metacognitive skills include planning, monitoring and evaluating related tasks performed by students.

Parental Education: In the present study parental education is the education of the parents. It is categorized into two groups such as below 10th and 10th and above.

Achievement: Achievement as successful performance in particular subjects, areas, or courses, usually by reasons of skill, hard work and interest. In the present study those student who secured more than 60% marks in last school examination are high achiever and below 60% are low achiever.

OBJECTIVES

1. To compare the metacognitive skills of elementary students with reference to sex.
2. To compare the metacognitive skills of elementary students with reference to parental education.
3. To compare the metacognitive skills of elementary students with reference to level of achievement.

HYPOTHESES

1. There will not be significant difference in metacognitive skills of boys and girls of elementary school students.
2. There will not be significant difference in metacognitive skills of elementary school students with different parental education.
3. There will not be significant difference in meta cognitive skills of high and low achiever elementary school students .

METHODOLOGY

The survey method was applied with 63 elementary school students (30 male and 33 female students) selected from different blocks of Cuttack district, Odisha. The simple random sampling technique was employed in selecting the sample. The scale was constructed and developed by the investigator having 42 items, based on planning (15), monitoring (14) and evaluating (13). The split-half reliability coefficient was found to be 0.69. The content validity was ensured by taking experts comments and suggestions for developing the scale. The demographic data of the participants were gathered via the information sheet. In the information sheet, data of the students include their name, gender, parental education and achievement. The data were analyzed by using t-test and accordingly interpretations are made.

DATA ANALYSIS AND INTERPRETATION

The first objective was to compare the metacognitive skills of elementary students with reference to sex. The investigator compared the metacognitive skills by using t-test.

Table 1. Metacognitive Skills of Elementary Students with Reference to Sex

<i>Sex</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>DF</i>	<i>T value</i>	<i>Significace</i>
Boys	30	63.67	8.58	61	1.15	Significant at 0.05 levels
Girls	33	65.94	7.05			

The table-1 indicates that the mean score of boys is 63.67 with SD of 8.58 and girls, is 65.94 with SD of 7.05. The t-value is 1.15, which is not significant at 0.05 levels. Hence the null hypothesis ‘there will not be significant difference in metacognitive skills of boys and girls of

elementary school students' is accepted at 0.05 levels. It can be said that boys and girls have similar level of metacognitive skills.

The investigator compared the metacognitive skills of elementary students with reference to parental education by using t- test, which is given in table-2.

Table 2. Metacognitive Skills with Reference to Parental Education

<i>Parental Education</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>DF</i>	<i>T value</i>	<i>Significace</i>
Below 10 th Class	28	61.46	7.8	61	3.30	Significant at 0.05levels
10 th Class and above	35	67.57	6.48			

The table-2 indicates that the mean score of students having parent(below 10th class) is 61.46 with SD of 7.85 and above 10th class pass is 67.57 with SD of 6.48. The t-value is 3.30, which is significant at 0.05 levels. Hence the null hypothesis 'there will not be significant difference in metacognitive skills of elementary school students with different parental education' is rejected at 0.05 levels. The alternative hypothesis 'there will be significant difference in metacognitive skills of students having parents with different educational qualification. It can be said that parent's education is associated with development of metacognitive skills.

The investigator also compared the metacognitive skills of elementary school students with reference to level of achievement. The investigator compared the meta-cognitive skills of high achiever and low achievers.

Table 3. Metacognitive Skills with Reference to Achievement

<i>Achievement of students</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>DF</i>	<i>T value</i>	<i>Significace</i>
Low	09	56.78	5.38	61	3.65	Significant at 0.05levels
High	54	66.20	7.39			

The table-3 indicates that the mean score of low achiever is 56.78 with SD of 5.38 and high achiever is 66.20 with SD of 7.39. The t-value is 3.65, which is significant at 0.05 levels. Hence the null hypothesis 'there will not be significant difference in meta-cognitive skills of high and low achiever elementary school students' is rejected at 0.05 levels. The alternative hypothesis 'there is a significant difference in metacognitive skills of high and low achiever elementary school students' is accepted. It can be said that students having high achievement have better metacognitive skills than students having low achievement.

MAJOR FINDINGS

1. There is no significant difference in metacognitive skills of boys and girls of elementary school students at 0.05 levels. It can be said that boys and girls have similar level of metacognitive skills.
2. There is a significant difference in metacognitive skills of students having parents with different educational qualification 0.05 levels. It can be said that parent's education is associated with development of metacognitive skills.

3. There is a significant difference in metacognitive skills of high and low achiever elementary school students at 0.05 levels. It can be said that students having high achievement have better metacognitive skills than students having low achievement.

EDUCATIONAL IMPLICATIONS

The investigations of the present type have obvious implications for both educational theory and practice. Students should be encouraged to develop their metacognitive skills, how to learn and constructivist way of learning should be encouraged. Teachers may search other approaches and methods to develop metacognition and implement different evaluation technique to develop metacognitive skills among the students. Teacher create learning environment for the students for the development of metacognitive skills. Parents should encourage their children to develop metacognitive skills instead of developing memory skills. They should emphasize metacognitive learning instead of traditional learning. Curriculum developers should include content of the subject and such activities in the exercise, which helps the students to develop metacognitive skills. The study has implications for both pre-service and in-service teacher education. The pre-service teacher education curriculum should include theory and practices on metacognition so that prospective teachers can help students in developing metacognitive skills. The capacity building programmes should be organized for teachers to develop knowledge and skills in metacognitive skills.

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