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Meta-Cognitive Skills Among The Student Teachers Of Teacher Education Colleges.

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Abstract
The present study is to investigate the meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur. The objectives of the study are to find out the meta-cognitive skills among male and female student teachers based on gender, to compare the meta-cognitive skills among first and second year student teachers related to their semester, to know the meta-cognitive skills among the student teachers related to their age, to find the meta-cognitive skills among student teachers based on their area and to suggest remedial measures to develop meta-cognitive skills. The study employed descriptive research. The population of the study is 300 and the sample is 106 collected through simple random sampling. Meta-Cognitive Skills (MCSS) developed by Prof. Dr. Madhu Gupta and Ms. Suman having 42items on four dimensions of meta-cognitive skills is used. Statistical technique t-test and percentage are used. From the study, it was inferred that on significant difference was found based on their gender, semester, age and residence. So, it is concluded that meta-cognitive skills have to increase to learn specific skills and how to recognize and practice them is needed in many fields.

Keywords: *Meta-Cognitive skills, Student Teacher, Gender, Residence, Age.*

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I. Introduction

The term, metacognition, first came out as the result of a study on children's memory processes, done out by Flavell and the others in 1970. The findings of the study showed that younger children were poor in features of cognitive of metacognitive skills. Metacognition is generaly a dynamic process which constitutes the meta-structure of information processing and which actively participates in the information processing. Metacognition is a process which manages and controls the cognitive process of attention, selective perception, storing in short term memory, encoding into long term memory and retrieval. (Altingag & Senemoglu, 2013).

In order to learn at desire level, it is very significant to enhance metacognitive skills which control one's own learning processes. A person who has high metacognitive skills can focus on their learning, can differentiate important or unnecessary ideas, know how to utilized methods to keep the ideas in short term memory or to store in long term memory and to restore it when needed, assess if learning is fulfilled, make required changes in metacognitive skills depending on these experiences to be more successful at the learning process.

The term has been used to refer to two somewhat separate phenomena and we would like to make this separation explicit here. Flavell (1978) defined metacognition as" knowledge that takes as its object or regulates any aspect of any cognitive endeavor". Two (not necessarily independent) clusters of activities are included in that statement: knowledge about cognition and regulation of cognition. (Baker & Brown, 1980). It plays a significant role in monitoring and regulating cognitive processes and helps to know when, why, where and how to utilize their own ideas to solve problems successfully. Therefore, metacognitive plays a crucial issue in solving problems. Problem-solving involves not only cognitive strategies but also metacognitive skills and it is more than just implementing strategies to solve the problems. (Guner & Erbay, 2021).

Additionally, metacognitive strategies such as concept mapping, journal writing, critical thinking, organization and thinking aloud have been demonstrated to be particularly effective in enhancing student's self-regulation, reducing anxiety and fostering deeper learning regardless of the educational setting. (Panigrahi, et al. 2025). It is believed that meta-cognitive skills play an important role in much type of cognitive activities including comprehension, communication, attention, memory and problem solving to make self-regulated, positive, confident and mature learners who take responsibility for their learning experiences. Teachers are responsible for

helping students to develop better meta-cognitive skills by incorporating active reflection during and after learning experiences should be emphasized by the teachers. (Gupta, 2017).

Metacognition is the most recent buzzword in the field of educational psychology. It includes active control over the cognitive processes engaged n learning. Cognition is the mental processing of ideas which is the role of human mind that permit perceptions to develop into conceptions. When we restrain over our cognitive functions that is called as meta-cognition. It is mixed monitoring and regulation of one's own thinking processes. It is a conscious verification of one's private cognitive status that helps people to build and enlarge new ideas. Meta-cognitive skills forecast success in academics effort and another fields of life. It plays a significant role in communication, reading comprehension, language acquisition, social cognition, attention, self- control, memory, self- instruction, problem solving and development of personality.

Metacognition is a concept which include any ideas or cognitive process that refers to check or controls any features of cognition, it is also seen as a central contributor to every feature of cognition containing memory, attention, communication, problem solving and intelligence with significant applications to fields such as education, ageing, neuro-psychology and eye witness evidence.

Therefore, metacognition is defined as, "thinking about thinking". The term has been an element of the vocabulary of educational psychologists for the final couple of decades and the term for as long as people have been power to reflect on their cognitive experiences, there is much discussion over exactly what metacognition is. The cause for this disruption is that there are different concepts currently used to describe the similar basic phenomena or a feature of the phenomena and these concepts often used changeable in the literature. While there are some differences between definitions, all indicate the role of executive processes in the overseeing and regulation of cognitive processes.

II. Significance Of The Study

Meta-cognition is very important in the field of education. It helps students to be effective by enabling them to plan, monitor and assess their learning strategies. This self -regulation leads to more effective use of study time and enhance knowing of things. Meta-cognitive help students to approach problems systematically. By reflecting on their mind and methods, students can solve difficult problems more effectively. This also enhanced academic performance and developed self- regulated students. Such students are better at goals setting, time management and can adjust their learning strategies depend on their assessment and feedback. Meta-cognitive skills also help students to adapts to different learning environment as adaptability is important for lifelong learning and success in every aspect. Hence, meta-cognition is important in education because it makes students to manage their own learning, improved academic results, more freedom and developed problem solving abilities. From the mention points the investigator has interested to study about meta-cognitive skills.

III. Objectives Of The Study

1. To find the level of meta-cognitive skills among the student teachers of Teacher Education colleges of Bishnupur District in Manipur.
2. To find out the meta-cognitive skills among male and female student teachers of Teacher education colleges of Bishnupur District in Manipur based on gender.
3. To compare the meta-cognitive skills among the 1st and 2nd year student teachers of Teacher Education Colleges of Bishnupur District in Manipur.
4. To find the meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on their age.
5. To find out the meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on their area.

IV. Hypotheses Of The Study

Ho1: There is no significant difference in the mete-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on their gender.

Ho2: There is no significant difference in the meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on their semester year.

Ho3: There is no significant difference in the meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on their age.

Ho4: There is no significant difference in the meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on their area.

V. Review Of Related Literature

Neurosci, A. (2025). Conducted a study on "Meta Cognitive Awareness and Academic Performance: Implications from a Cognitive Neuroscience Perspective in Pre-service Teacher Education." The study shows that 60% of the students had above average. Meta cognitive awareness, while academic achievement was different and below average was 40%. No gender difference that was statistically significant come out in either domain. The study found a very week positive and statistically not significant correlation between Academic Achievement and Metacognitive Awareness. The study revealed that metacognitive awareness cannot guarantee academic performance.

Thienngam, S., et al. (2020). done a study titled "Influence of Teacher's Meta cognitive Skills on Development of Early Childhood Students". The findings results that teachers who joined with the program had got higher metacognitive skills score for both the knowledge of cognition and knowledge of regulation than the other. The teacher who had different supportive factors, different attitude towards pedagogy and different self-efficacy had statistically significant difference in metacognitive skills in each dimension at the 0.01 level. The score of meta cognitive skills after participation were higher than before in 0.01level in each dimension. The score of post-test for early childhood student meta cognitive skills was statistically significantly higher than pretest score at 0.01 level in each dimension.

Pandey,S. 9 (2024). On" The Role of Metacognition in Enhancing Educational Outcomes" highlights that the critical role of metacognition in education, demonstrating its significant impact on student performance and engagement. The study finds out different challenges in implementing metacognitive strategies like variability in student skills and difficulties in measurement.

Panigrahi, A.R. et al. (2025)." The impact of meta-cognitive skills on students learning" found that metacognitive strategies increase self- regulation, problem solving, critical thinking and creativity, gave to improved learning outcomes for students. Gender differences in metacognition persist inconsistent, though femals often show higher metacognitive awareness.

Guner,P. & Erbay, H.N. (2021). Entitled on the study "Metacognitive Skills and Problem-Solving" showed that metacognitive skills have a significant effect on problem solving success. The study highlights that students high with metacognitive skills had the tendency to solve the problem correctly by using appropriate strategies, mathematical notations and logical reasons. The results also showed that students who were poor in meta cognitive skills have hardships in understanding the problem, selecting appropriate strategies and finding correct answer. The study concluded that their habits of checking, detecting and correcting faults in their solutions were week.

VI. Methodology

Descriptive method was employed as the method of the study. The total population comprised of 300 student teachers (both male and female). The sample size of 106 has been selected from female student teachers and male student teachers. Simple Random Sampling technique was employed for the study. Standard Questionnaire developed by Prof. Dr. Madhu Gupta and Ms. Suman has been adopted as tools of the study. The questionarie consists of 42 items and 4 dimensions. Five points rating scale was used to judge the suitability of statements regarding the meta cognitive skills of student teachers i e strongly agree, agree, undecided, disagree and strongly disagree. The collected data has been analyzed and interpreted with the help of the t-test, percentage, mean and standard deviation.

VII. Data Analysis And Interpretation

The overall level of meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur is above average.

Table 1: Level of Meta-Cognitive Skills Among Student Teachers

Classify Meta-Cognitive Skill	Frequency	Percent	Valid Percent	Cumulative percent
High	13	12.3	12.3	12.3
Above Average	60	56.6	56.6	68.9
Average	31	29.2	29.2	98.1
Below Average	2	1.9	1.9	100.0
Total	106	100.0	100.0	

Source: Field work

Interpretation

From the above table, it is observed that 12.3% of student teachers are high, 56.6% are above average, 29.2% are average, 1.9% are below average. So, 56.6% of student teachers have above average level of meta-cognitive skills.

Ho1: There is no significant difference among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on gender.

Table 2: Meta-cognitive skills based on gender

	Gender	N	Mean	Std Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Classify MCS	Male	21	3.14	.727	.159	.491	104	.625	.081	.164
	Female	85	3.22	.661	.072					

Interpretation

The above table presents the statistical comparison between meta-cognitive skills of male and female student teachers. The mean, std deviation and p value are given in the relevant column of the table. Meta-cognitive skills of male and female were compared by using t-test (2-tailed) which was found to be not significant at 0.05 level as the corresponding p value is .625. Male and female student teachers have same level of meta-cognitive skills. The hypothesis stating that "There is no significant difference in the meta-cognitive skills among the student teachers of Teacher Education colleges of Bishnupur District in Manipur based on gender" is accepted.

Ho2: There is no significant difference in the meta-cognitive skills among the student teachers of Teacher Education colleges of Bishnupur District in Manipur based on semester year.

Table 3 Meta-cognitive skills based on semester year

	Gender	N	Mean	Std Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Classify MCS	First Year	52	3.23	.731	.101	0.348	104	0.729	0.046	0.131
	Second Year	54	3.19	.617	.084					

Interpretation

The above table presents the statistical comparison between meta-cognitive skills of student teachers of first year and second year. The mean, standard deviation and p value are given in the relevant column of the table. Meta-cognitive skills of first year and second year semester student teachers were compared by using t-test (2-tailed) which was found to be not significant at 0.05 level as corresponding p value is 0.362. First year student teachers and second year student teachers have same level of meta cognitive skills. The hypothesis stating that "There is no significant difference in the meta-cognitive skills among student teachers of Teacher Education Colleges of Bishnupur district in Manipur based on semester year" is accepted.

Ho3: There is no significant difference in the meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on their age.

Table: 4 Meta-cognitive skills based on their age

	Gender	N	Mean	Std Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Classify MCS	below 30 years	65	3.18	.635	.079	-0.441	104	0.660	-.059	0.135
	above 30 years	41	3.24	.734	.115					

Interpretation

Again, the above table also presents the statistical comparison between the meta-cognitive skills of student teachers based on their age (below 30 years and above 30 years). The mean, standard deviation and p value are given in the relevant column of the table. Meta-cognitive skills of below 30 years and above 30 years were compared by using t-test(2-tailed) which was found to be not significant at 0.05 level as corresponding p value is 0.660. Below 30 years student teachers and above 30 years student teachers have same level of meta cognitive skills. The hypothesis stating that " There is no significant difference in the meta-cognitive skills of student teachers in Teacher Education colleges of Bishnupur district in Manipur based on age" is accepted.

Ho4: There is no significant difference in the meta-cognitive skills among student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on area.

Table 4: Meta-cognitive skills based on area

	Gender	N	Mean	Std Deviation	Std. Error Mean	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Classify MCS	Rural	71	3.30	.705	.084	1.950	104	0.054	0.267	0.137
	Urban	35	3.03	.568	.096					

Interpretation

The above table shows the statistical comparison between the meta-cognitive skills of student teachers based on their area (rural and urban). The mean, standard deviation and p value are given in the relevant column of the table. Meta cognitive skills based on their area were compared by using t test (2 tailed) which was found to be not significant at 0.05 level as corresponding p value is 0.054. Rural area student teachers and urban area student teacher pose similar level of meta-cognitive skills. The hypothesis stating that "There is no significant difference in the meta-cognitive skills among the student teachers of Teacher Education Colleges of Bishnupur District in Manipur based on their area is accepted.

VIII. Findings

The study found that most of the student teachers of the Teacher Education colleges of Bishnupur District in Manipur has above average level of meta-cognitive skills. The study also revealed that there exists no significant difference in between the meta-cognitive skills of student teachers based on their gender, age, semester year and area. Both male and female, below 30 and above 30 years, first year and second year, rural and urban residence of student teachers have same of meta-cognitive skills. Therefore, all the null hypotheses are accepted.

IX. Recommendation And Conclusion

To improve academic performance, meta-cognitive skills is one of the most effective way and help students to achieve their success. National Education Policy 2020 also emphasize meta-cognitive skills to develop high order thinking, problem solving and critical thinking. Strong meta-cognitive skills help students with the required tools for effectively regulating and owing them learning. Teachers should use explicit meta-cognitive language and instruction, ask question rather than providing answers, give illustrative meta-cognitive skills with examples, provide model and prompt students to link their teaching, encourage students deep thinking and self-awareness. Therefore, students need high meta-cognitive skills to become self-regulated thinkers, for deep understanding, for high achievement and greater independence.

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