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ANALYSIS OF METACOGNITIVE SKILLS AWARENESS AMONG STUDENT TEACHERS

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Abstract

Learning depends on the effective use of cognitive process such as memory and attention, the activation of relevant background knowledge and the deployment of cognitive strategies to achieve particular goals. Learners also need to have awareness and control of their cognition and this is called Metacognition. The label Metacognition was given by American psychologist John Flavell (1976). ***Metacognition*** *refers to higher order thinking which involves active control over the cognitive processes engaged in learning. Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are* ***metacognitive*** *in nature. Since adults are largely self determining, therefore they can develop metacognitive skills which are an essential element in any program intended to increase their autonomy. With this reference researcher analyse metacognitive awareness skills among B.Ed. Student teachers.*

Keywords: *Metacognition, Metacognition Skills, Metacognitive skills Awareness, Student Teachers.*

Introduction:

The fundamental principle of the best education is to teach ‘How to learn’. Learning depends on the effective use of cognitive process such as memory and attention, the activation of relevant background knowledge and the deployment of cognitive strategies to achieve particular goals. To ensure that the basic processes are used effectively that the activated knowledge is indeed relevant and the appropriate strategies are being organized. Learners also need to have awareness and control of their cognition and this is called Metacognition. The label Metacognition was given by American psychologist John Flavell (1976).

Theoretical background of Metacognition:

Before introduction of name Metacognition, some reflections about the concept can be found in writing dating back to Plato, who emphasized the importance of reflection through dialogue. John Dewey often considered as the father of progressive education who viewed reflection as a central part of active learning.

Brown's early interest in metacognition was reflected in the title of a 1978 chapter, “Knowing when, where, and how to remember: A problem of metacognition.” Her 1970s research on

how children were able to assess their readiness to be tested on recall of simple materials, such as pictures of common objects, evolved naturally into research on the role of metacognition in studying academic materials and comprehending prose.

Although Flavell and Brown are credited with introducing the term metacognition, they were not the first to study phenomena that was to be called metacognitive. From the beginning of the twentieth century, researchers were documenting the importance of monitoring and regulating one's comprehension processes. Memory researchers were studying feelings of knowing and memory monitoring from 1960s. Information processing models from the 1970s included executive control systems that regulate basic cognitive processes.

Vygotsky theorized that children develop the capacity for self-regulation through interaction with more knowledgeable children. These individuals initially assume responsibility for monitoring progress, setting goals, planning activities, allocating attention, and so on. Gradually, responsibility for these executive processes is given over to the child, who becomes increasingly capable of regulating his or her own cognitive activities. Piaget demonstrated children's ability to verbalize the process they used in completing a task and the ways in which they were aware of their thinking. This awareness called as "consciousness of cognizance", which maps closely to concept of Metacognition. Vygotsky further explored these ideas in his research about the child's "inner voice" or the process of verbalizing internal thoughts out loud not only helps a student learn also they can demonstrate an awareness of the learning process. Because of the mentioned aspects we can define term Metacognition.

Metacognition refers to higher order thinking which involves active control over the cognitive processes engaged in learning. Activities such as planning how to approach a given learning task, monitoring comprehension, and evaluating progress toward the completion of a task are **metacognitive** in nature.

Since adults are largely self determining, therefore they can develop metacognitive skills which are an essential element in any program intended to increase their autonomy. With this reference purpose of this paper is to analyse metacognitive awareness skills among B.Ed. Student teachers.

Statement of the problem:

To study the Metacognitive skills awareness among B. Ed. student teachers with analysis of metacognitive skill factors

Definition of important terms:

Conceptual definitions:

Metacognitive Skill:

"Awareness of one's own thinking, awareness of the content of one's conceptions, an active monitoring of one's cognitive processes, an attempt to regulate one's cognitive processes in relationship to further learning, and an application of a set of heuristics as an effective device for helping people organize their methods of attack on problems in general" (Hennessey, 1999) - Emily R. Lai (April 2011) Metacognition: A Literature Review Research Report; Pearson

B.Ed. student teachers: The students who are studying in Bachelor of Education course. It is the undergraduate professional degree for teaching in high schools.

Operational definitions

Metacognitive Skill: According to Schraw G. and Dennis R.S. inventory metacognitive skill referred to as the metacognitive knowledge, metacognitive regulation and metacognitive experience of student teachers' cognitive activities while developing lesson plan.

B.Ed. student teachers: The students who are pursuing Bachelor of Education degree of Savitribai Phule Pune University in College of Education (B.Ed. English medium) and studying in first year.

Objectives of research:

1. To analyse metacognitive knowledge among student teachers.
2. To analyse metacognitive regulation among student teachers.
3. To analyse metacognitive experiences among student teachers.

Research Methodology:

Survey Method

Sample: 8 English medium colleges of teacher education situated at Pune and affiliated to Savitribai Phule Pune University Pune.

Tools:

Metacognitive awareness Inventory for teachers which is developed by Cem Balcikanli

Statistical tools:

Pi – Chart, Percentage

Data Analysis:

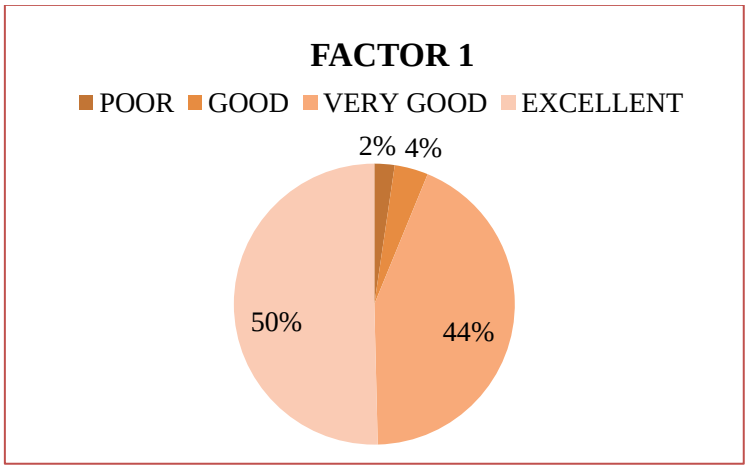
Factor 1: Factor number one is about investigation of Declarative Knowledge skill. After calculating scores obtained from item Number 1, 7, 13, 19, researcher calculated number of

student teachers obtained scores in particular rating scale and then calculated percentage. With use of graphical representation interpretation is done.

Factor 1(Declarative Knowledge)

	POOR **4-8**	**GOOD** **9-12**	**VERY GOOD** **13-16**	**EXCELLENT** **17-20**	**TOTAL**
Number of Student teachers	6	10	112	130	258
Percentage	2.3 %	3.9 %	43.4 %	50 %	100%

Survey Analysis Factor 1



Survey Analysis Factor No. 1

Observation: Table and Graph show that more Number of student teachers that are 130 and 50% student teachers from the sample is fall under excellent category. Also it is observed that 112 and 43.4% student teachers fall under very good category. Out of 258 student teachers only 6 (2.3%) and 10 (3.9%) student teachers are observed under Poor and Good category respectively.

Interpretation: More Number of student teachers from the sample is having excellent awareness about Declarative Knowledge skill. There is negligible number of student teachers having poor awareness about Declarative Knowledge skill. Declarative knowledge is about the factual information stored in memory and known to be static in nature. That means more Number of student teachers having excellent skill of memorizing the factual or static information.

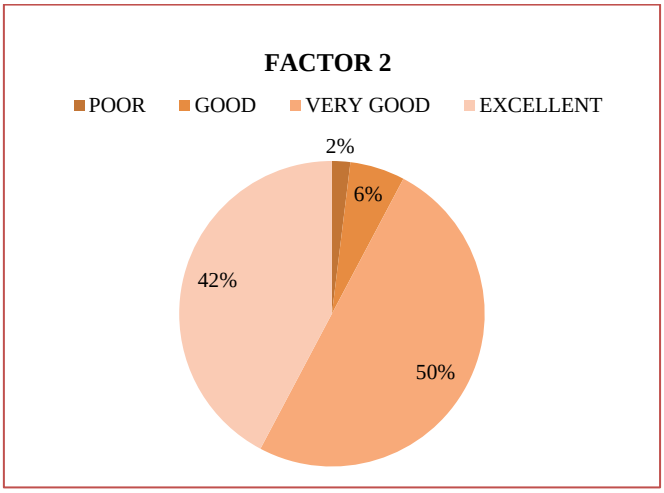
Factor 2: Factor number two is about investigation of Procedural Knowledge skill. After calculating scores obtained from item Number 2, 8, 14, 20, researcher calculated number of

student teachers obtained scores in particular rating scale and then calculated percentage. With use of graphical representation interpretation is done.

Factor 2 (Procedural Knowledge)

	POOR	**GOOD**	**VERY GOOD**	**EXCELLENT**	**TOTAL**
	4-8	9-12	13-16	17-20	
Number of Student teachers	5	15	129	109	258
Percentage	1.9 %	5.8 %	50 %	42.2 %	100 %

Survey Analysis Factor 2



Survey Analysis Factor No. 2

Observation: Table and Graph show that more Number of student teachers that are 129 and 50% student teachers from the sample is fall under very good category. Also it is observed that 109 and 42.2 % student teachers fall under excellent category. Out of 258 student teachers only 5 (1.9%) and 15 (5.8 %) student teachers are observed under Poor and Good category respectively.

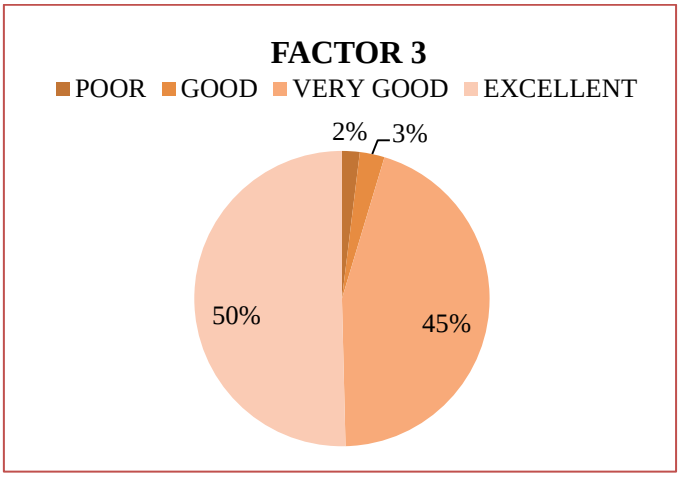
Interpretation: More Number of student teachers from the sample is having very good awareness about Procedural Knowledge skill. There is negligible Number of student teachers having poor awareness about Procedural Knowledge skill. Procedural Knowledge refers to knowledge about doing things. This type of knowledge is displayed as heuristics and strategies. A high degree of procedural knowledge can allow individuals to perform tasks more automatically. That means more number of student teachers having very good skill of process on the declarative knowledge and doing task better manner.

Factor 3: Factor number three is about investigation of conditional Knowledge skill. After calculating scores obtained from item Number 3, 9, 15, 21, researcher calculated number of student teachers obtained scores in particular rating scale and then calculated percentage. With use of graphical representation interpretation is done.

Factor 3 (Conditional Knowledge)

	POOR	**GOOD**	**VERY GOOD**	**EXCELLENT**	**TOTAL**
	4-8	9-12	13-16	17-20	
Number of Student teachers	5	7	116	130	258
Percentage	1.9 %	2.7 %	45.0 %	50.4 %	100 %

Survey Analysis Factor 3



Survey Analysis Factor No. 3

Observation: Table and Graph show that more Number of student teachers that are 130 and 50% student teachers from the sample is fall under excellent category. Also it is observed that 116 and 45 % student teachers fall under very good category. Out of 258 student teachers only 5 (1.9%) and 7 (2.7 %) student teachers are observed under Poor and Good category respectively.

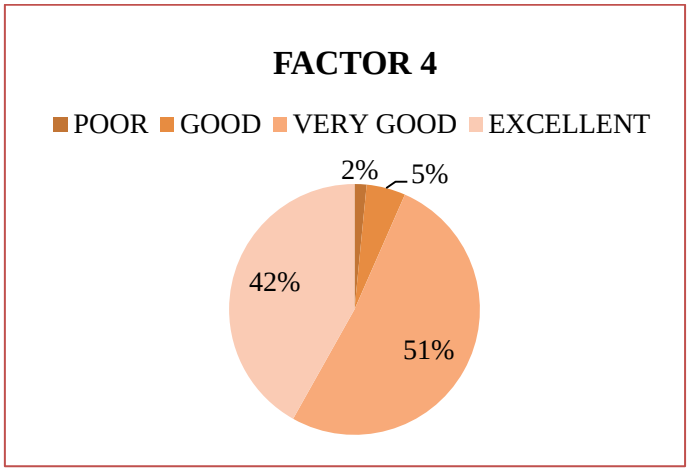
Interpretation: More Number of student teachers from the sample is having excellent awareness about Conditional Knowledge skill. There is negligible number of student teachers having poor awareness about Conditional Knowledge skill. Conditional Knowledge refers to knowledge about doing things. This type of knowledge refers to knowing when and why to use declarative and procedural knowledge. That means more number of student teachers having excellent skill of process on the procedural knowledge and therefore they are well aware about when and why the things are done in teaching process.

Factor 4: Factor number four is about investigation of planning skill. After calculating scores obtained from item Number 4, 10, 16, 22, researcher calculated number of student teachers obtained scores in particular rating scale and then calculated percentage. With use of graphical representation interpretation is done.

Factor 4 (Planning Skill)

	POOR	**GOOD**	**VERY GOOD**	**EXCELLENT**	**TOTAL**
	4-8	9-12	13-16	17-29	
Number of Student teachers	4	13	133	108	258
Percentage	1.6 %	5.0 %	51.6 %	41.9 %	100 %

Survey Analysis Factor 4



Survey Analysis Factor No. 4

Observation: Table and graph show that more Number of student teachers that are 133 and 51.6% student teachers from the sample are fall under very good category. Also it is observed that 108 and 41.9 % student teachers fall under excellent category. Out of 258 student teachers only 4 (1.6%) and 13 (5 %) student teachers are observed under Poor and Good category respectively.

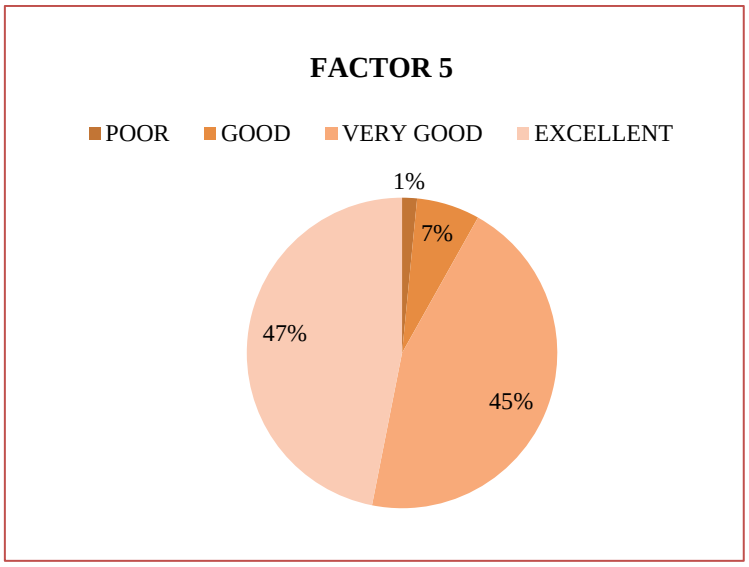
Interpretation: More number of student teachers from the sample is having very good awareness about planning skill. There is negligible number of student teachers having poor awareness about planning skill. Planning skill refers to the appropriate selection of strategies and the correct allocation of resources that affect task performance. That means more number of student teachers having very good skill of planning. But as compared to Metacognitive knowledge more number of student teachers falls in good category that means planning is quite difficult task for student teachers.

Factor 5: Factor number five is about investigation of Monitoring skill. After calculating scores obtained from item Number 5, 11, 17, 23, researcher calculated number of student teachers obtained scores in particular rating scale and then calculated percentage. With use of graphical representation interpretation is done.

Factor 5 (Monitoring Skill)

	POOR	**GOOD**	**VERY GOOD**	**EXCELLENT**	**TOTAL**
	4-8	9-12	13-16	17-20	
Number of student teachers	4	17	116	121	258
Percentage	1.6 %	6.6 %	45.0 %	46.9 %	100 %

Survey Analysis Factor 5



Survey Analysis Factor No. 5

Observation: Table and Graph show that more Number of student teachers that are 121 and 49.6% student teachers from the sample are fall under excellent category. Also it is observed that 116 and 45 % student teachers fall under very good category. Out of 258 student teachers only 4 (1.6 %) and 17 (6.6 %) student teachers are observed under Poor and Good category respectively.

Interpretation: More Number of student teachers from the sample is having excellent awareness about monitoring skill. There is negligible number of student teachers having poor awareness about monitoring skill. Monitoring skill means person can monitor for own, ongoing cognitive knowledge or process. That means more number of student teachers

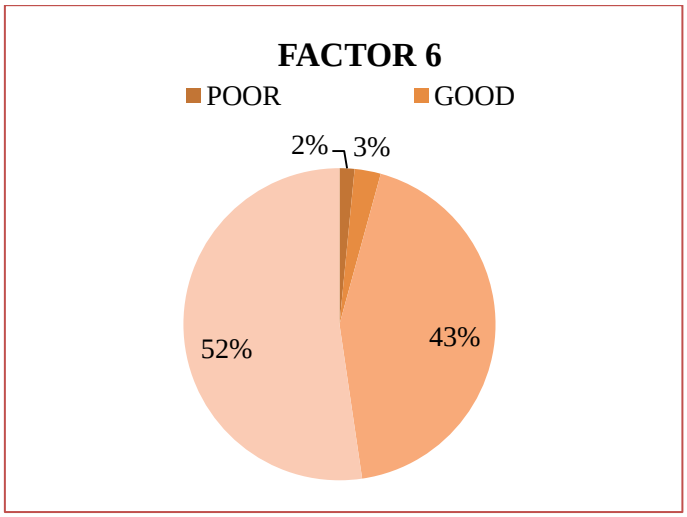
having excellent skill of monitoring. But as compared to Metacognitive knowledge more number of student teachers fall in good category that means Monitoring is quite difficult task for student teachers.

Factor 6: Factor number six is about investigation of evaluating skill. After calculating scores obtained from item Number 6, 12, 18, 24, researcher calculated number of student teachers obtained scores in particular rating scale and then calculated percentage. With use of graphical representation interpretation is done.

Factor 6

	POOR	**GOOD**	**VERY GOOD**	**EXCELLENT**	**TOTAL**
	4-8	9-12	13-16	17-20	
Number of student teachers	4	7	112	135	258
Percentage	1.6 %	2.7 %	43.4 %	52.3 %	100 %

Survey Analysis Factor 6



Survey Analysis Factor No. 6

Observation: Table and Graph show that more Number of student teachers that are 135 and 52.33% student teachers from the sample fall under excellent category. Also it is observed that 112 and 43 % student teachers fall under very good category. Out of 258 student teachers only 4 (2%) and 7 (3 %) student teachers are observed under Poor and Good category respectively.

Interpretation: More Number of student teachers from the sample is having excellent awareness about evaluating skill. There is negligible number of student teachers having poor awareness about evaluating skill. Evaluating skill means student teachers can evaluate their

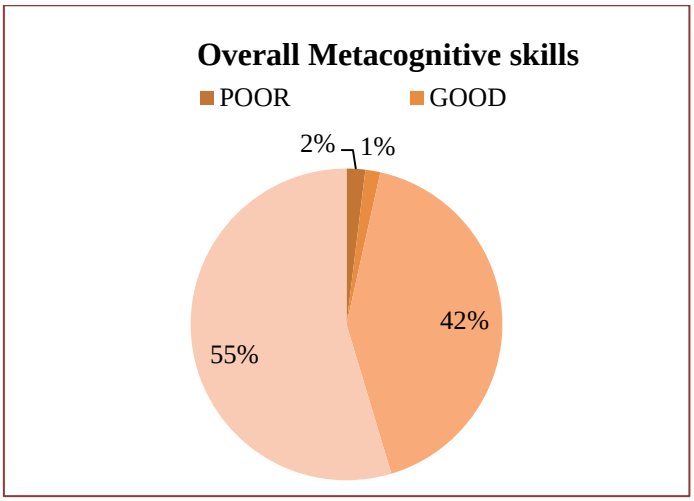
performance on the task, student teachers can compare their performances with each other and they can use the result of comparison to locate the error in the solution process. That means more number of student teachers having excellent skill of evaluating or they can evaluate their performance.

Overall metacognitive skills awareness: Scores of all the items in the inventory are considered for interpreting overall metacognitive skills awareness. After that researcher calculated number of student teachers obtained scores in particular rating scale and then calculated percentage. With use of graphical representation interpretation is done.

Overall Metacognitive skill

	POOR	**GOOD**	**VERY GOOD**	**EXCELLENT**	**TOTAL**
	4-8	9-12	13-17	17-20	
Number of student teachers	5	4	108	141	258
Percentage	1.94 %	1.55 %	41.86 %	54.7 %	100 %

Survey Analysis for overall metacognitive skill



Survey Analysis for Overall Metacognitive skill

Observation: Table and Graph show that more Number of student teachers that are 141 and 54.65% student teachers from the sample are fall under excellent category. Also it is observed that 108 and 41.86 % student teachers fall under very good category. Out of 258 student teachers only 5 (1.94%) and 4 (1.55 %) student teachers are observed under Poor and Good category respectively.

Interpretation: More Number of student teachers from the sample is having excellent awareness about metacognitive skills. There is negligible number of student teachers having

poor awareness about metacognitive skill. Metacognitive skill means thinking about own thinking process. That means more number of student teachers can analyse own thinking process regarding the metacognitive skills.

After the analysis and the findings of survey data following conclusion can be derived-

1. B.Ed. student teachers have excellent Declarative Knowledge skill. Declarative knowledge is about the factual information stored in memory and known to be static in nature. B.Ed. student teachers have been completed their graduation and post graduation also many from that teaching for primary school students and coaching classes and that factors affect on their declarative knowledge skill.
2. B.Ed. student teachers have very good procedural knowledge skills because they are in learning phase they are learning how to use knowledge about subject and pedagogy. Therefore student teachers are having very good skill of process on the declarative knowledge and doing task better manner.
3. The student teachers are having excellent skill of process on the Declarative knowledge and procedural knowledge skill therefore they are well aware about when and why the things do in teaching process.
4. The student teachers are having 'very good' skill of planning. But compared to Metacognitive knowledge more number of student teachers fall in good category that means planning is quite difficult task for student teachers.
5. The student teachers are having excellence in skill of monitoring. But compared to Metacognitive knowledge again more number of student teachers fall in good category that means Monitoring is quite difficult task for student teachers.
6. Because of the experience of giving feedback to other students about their lesson conducted from microteaching and suggestions are given by teacher educators student teachers can evaluate their performance on the task. Also student teachers can compare their performances with each other and they can use the result of comparison to locate the error in the solution process. That means more number of student teachers are having excellent in skill of evaluating or they can evaluate their performance.
7. Metacognitive skill means thinking about own thinking process. That means more number of student teachers can analyse own thinking process regarding the metacognitive skills.

Discussion on the conclusions:

Metacognitive skills means thinking about own thinking. The research based on analysis of own thinking while planning and conducting the lesson. Survey data was collected from

different teacher education colleges and student teachers are daily learning about teaching and learning process. Many student teachers are aware about teaching process because of some experiences in school. Teaching learning environment and curriculum transaction process are different in different teacher education colleges. All above mentioned factors are affecting on metacognitive awareness of student teachers.

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