A Study on Meta-cognitive Skills of Senior Secondary Students in Relation to their Problem-Solving Awareness

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Abstract:
"The circle of Knowledge starts close cycle a man and thus loosens up concentrically"

- Pestalozzi

Education is a scientific manner through which one profits information, talents, revel in and sound attitude .It makes one refined, cultured and civilized. Honestly talking its miles training that impacts the Affective, Psychomotor and Cognitive domain names and allow us to address the emotions, physical processes, and the talents associated with cognition inclusive of important questioning and achievement. But you may visualize the sarcasm through the sayings of Krishnamurti stated that "Education what we name now could be simply the buildup of records and information contained within side the books, which any individual can do who can examine books". The gift training device specializes in simply studying of books, offer bookish information to college students and is generating big quantity of robots and different magnificence of technicians which is probably beneficial in quick time period however now no longer in a protracted journey. The Prime Minister Narendra Modi in Times of India (2014) expressed his ideas that "Our training equipment can`t be one which produces robots. That can manifest in laboratory. Their desires to be large character improvement". In the long term it's miles vital that such talents must be advanced which replicate the general persona development.

The main reason of this study was to inspect Meta-cognitive skills and Problem-Solving Awareness among senior secondary school students. In addition, this study aimed to probe the impact of meta-cognitive skills of Senior Secondary Students in the relation of Problem-Solving Awareness among Senior Secondary Students. Owing to the developing complexities because of globalization, there's a massive opposition within side the society in each and every sphere of life. It is consequently vital to spend money on training. NCF (2005) stated training have to offer manner and possibilities to decorate child`s innovative expression. Life skills including important questioning, interpersonal communication, negotiation abilities, trouble fixing and self-control are very important for managing regular demanding situations of life. Skills like important questioning and trouble fixing will maintain kids engaged because of which they also can acquire better in academics. There has been always a developing cognizance to consider wondering within side the relatively traumatic and difficult academic realm recently. In conjunction with the growing reputation of cognitive psychology, there was a pretty buzz across the phrases meta-cognition and problem solving skills. Thus, maximum researchers heralded new perspectives at the widespread and in all likelihood dating among meta-cognition and problem Solving Awareness. Over the years a large amount of studies has been executed with the purpose of figuring out constructs assuming an increasing number of valuable areas in cognitive improvement studies. In fact, meta-cognition has inspired a flood of new studies and guides in learning. With this background, the majority of the studies on relation among Meta-cognitive skills and Problem Solving Awareness, however, in the long run give researchers a prescription for encouraging college students to decorate their methods of their wondering skills.

Keywords: Meta-cognitive skills, Problem-Solving Awareness and Senior Secondary School Students

INTRODUCTION:

Inevitably, recently, there has been a growing awareness of thinking in the demanding and challenging field of education. Combined with the growing popularity of cognitive psychology, the terms meta-cognition and problem Solving Awareness have become

quite a fuss. As a result, most researchers have developed new perspectives on the fundamental and possible relationship between meta-cognitive skills and problem Solving Awareness. Over the years, a great deal of research has been conducted with the aim of identifying two constructs that have become increasingly important in the study of cognitive development. In fact, meta-cognition has spurred the recent proliferation of research and publications on language learning. With this in mind, however, most studies on the relationship between Meta-cognitive skills and Problem Solving Awareness ultimately provide researchers with a way to encourage students to improve their knowledge or thinking skills.

In the modern era, students need to be encouraged to think beyond their comfort zone and ask questions about their own paradigms and the world around them. “The activity of evaluation of arguments or propositions and making judgment that can guide the development of beliefs and taking action”.

Thinking outside of their comfort zone will help them to think critically, which in turn can help them engage in learning and perform at a higher level academically. As mentioned by Karbalaei (2012), the most important goal of education is to provide students with opportunities to develop concepts, meanings, prejudices and logic in arguments so that they can think deeply and try to understand more deeply the world they have inhabited. Children will try to thinkonly when they encounter a situation where values, opinions, and knowledge conflict with each other will they go deep and out of their comfort zone.

Conceptually, Problem-Solving Awareness refers to “curiousness, open-mindedness, analyticity, verity- seeking, Problem-Solving Awareness tone- confidence, and maturity” (Facione, 2007). In this regard, Problem-Solving Awareness, by description, is a complex process that entails the use of advanced situations of cognitive skills in the information process (Choy & Cheah, 2009). In that process, it's demanded to reflect on what's known and how that knowledge is justified, as well (Kuhn, 1999). Problem-Solving Awareness may be a little harder to define, but here is a first approximation: Problem-Solving Awareness is evaluating ideas for their quality, especially judging whether or not they make sense. Problem-Solving Awareness is attributed to have pivotal characteristics of advanced order thinking skills. Problem-solving skills is “purposeful, tone-nonsupervisory judgment which results in interpretation, analysis, evaluation, and conclusion, as well as explanation of the evidential, abstract, methodological and abstract considerations upon which that judgment is grounded”. From this perspective, Problem-Solving Awareness as the purposeful operation of rational and advanced order thinking skills, similar as analysis of arguments, problem recognition and problem working (Angelo, 1995), making consequences using inductive or deducible logic, judging or assessing (Lai, 2011). In the words of Halpern (1998), Problem-Solving Awareness is “the use of cognitive skills or strategies that increase the skills of a desirable outgrowth”. Pascarella and Terenzini (1991) theorized that" Problem-Solving Awareness involves the existent’s skills to identify central issues and hypothetically in an argument, fete important connections, make correct consequences from data, conclude conclusions from information or data handed, interpret whether conclusions are warranted on the base of the data given, and estimate substantiation or authority. As an influential factor in the development of problem Solving Awareness capacities, meta-cognition requires the deployment of advanced order thinking skills. Also, Problem-Solving Awareness is an advanced order thinking exertion that requires a set of cognitive skills (Burden & Byrd, 1994) as follows the cap skills to define and concentrate on a problem to understand and judge the validity and thickness of the thesis

and information.

CONCEPTUAL BACKGROUND OF STUDY:

Meta-cognition is one's skills to use previous knowledge to plan skills for approaching a literary task; take necessary step to find out the solution and reflect on the estimates results, it modifies one's approach as demanded. It helps students to choose the right cognitive tool for the task and plays a critical part in successful literacy.

Meta-cognition is one of the latest buzzwords in educational psychology, but what exactly is meta-cognition? The length and abstraction of the word makes it sound intimidating, but it's not as intimidating as it seems. We engage in meta-cognitive activities every day. Meta-cognition makes us successful learners and is related to intelligence (eg, Borkowski, Carr, & Pressley, 1987; Sternberg, 1984, 1986a, 1986b). Meta-cognition refers to higher-order thinking that involves active control of cognitive processes during learning. Activities such as planning how to approach a particular learning task, monitoring comprehension, and assessing progress toward completing the task are meta-cognitive in nature. Because meta-cognition plays a vital role in successful learning, it is important to study meta-cognitive activity and development to determine how to teach students to make better use of their cognitive resources through meta-cognitive control.

Meta-cognitive skill is "one understands regarding one's very own cognitive strategies and consequences or whatever associated with them" (Flavell, 1976). In a later study, Flavell (1979) conceptualized meta-cognitive as "understanding and cognition approximately cognitive phenomena" and "considering questioning" (Flavell, 1979). Meta-cognition is the recognition (Kuhn & Dean, 2004) that's reportable and aware of the cognitive components (Jacobs & Paris, 1987) of better order questioning which entails energetic manipulate over the cognitive strategies engaged in getting to know (Livingston, 1997). It is involved with guiding the getting to know manner itself (Harris, 2003) and the capacity to mirror on, understand, and manipulate one's getting to know (Schraw & Dennison, 1994). As for meta-cognitive understanding (understanding of cognition), it refers to "what people recognize approximately their very own cognition in fashionable", and consists of 3 various meta-cognitive recognition: declarative understanding refers to understanding "approximately" matters. Procedural understanding is to recognize "how" to do matters. Conditional understanding involves understanding the "why" and "while" components of cognition that influences getting to know inclusive of why techniques are powerful, after they ought to be hired and while they're suitable (Schraw & Moshman, 1995). Nonetheless, meta-cognitive law refers to meta-cognitive moves or sports that assist inexperienced persons to govern their getting to know. It is usually recommended 3 primary regulatory abilities: making plans, tracking, and evaluation (Schraw, 1998) though it's also counseled to have sub-dimensions inclusive of making plans, tracking, statistics management, debugging, and evaluation (Jacobs & Paris, 1987). Indeed, making plans consists of "the choice of suitable techniques and the allocation of sources that influences overall performance" (Schraw, 1998). Conversely, Flavell's meta-cognitive version is created from the subsequent components: meta-cognitive understanding, meta-cognitive studies, goals, and techniques. Meta-cognitive understanding refers back to the individual's understanding or perceptions approximately 3 variables: individual, mission, and approach. The individual is any understanding or recognition approximately how one learns and strategies their cognitive sports. As for mission variable, it represents understanding approximately the character of the mission. The one upon three variables consists of the techniques wanted for reaching the goals. The 2d class,

meta-cognitive studies, cognitive or affective studies concerning highbrow functions, success, uncertainty, or pride approximately matters is covered on this class. As for goals (or tasks), they confer with the targets of any cognitive projects. The remaining class refers to moves (or techniques) are hired with the aid of using inexperienced persons to achieve their meta-cognitive objectives (Iwai, 2011). Meta-cognitive or meta-cognitive recognition involves taking into consideration one's very own questioning manner and additionally organizing that manner with the aid of using arranging important techniques to hire, after staring at his very own overall performance with the aid of using checking the effectiveness of the techniques, and finally with the aid of using judging the approach implementation on a given mission (Chamot, 1998). A essential declare of meta-cognitive studies is that Mental Awareness permits to mirror on one's very own questioning, broaden and use sensible problem-fixing abilities to clear up getting to know difficulties (Joseph, 2010). Moreover, meta-cognitive recognition lets in people to devise, manage, and reveal their very own questioning in a manner that immediately consequences overall performance and additionally profits the capacity to grasp statistics and hire important techniques to remedy troubles extra easily (Schraw & Dennison, 1994).

IMPORTANCE OF THE STUDY:

The current review investigated entrancingly that Problem-Solving Awareness is the vital part for the development of meta-discernment (Flavell, 1979; Kuhn, 1999) in light of the fact that it includes "care of one's own reasoning" and reflection on the reasoning of tone and others as an object of perception. With respect to meta-perception, it's characterized in similar to terms as care and activity of one's own review (Kuhn and Dean, 2004). As a matter of fact, it has been seen that Problem-Solving Awareness includes a high level place of meta-mental skills or involves the work of cutting edge position of mental abilities comparable as meta-cognizance in data process (Choy and Cheah, 2009). Further to this, Problem-Solving Awareness is probably going to be created through meta-comprehension (Schoen, 1983; Magno, 2010). A huge group of investigation writing has demonstrated the surprising connection between meta-cognizance and Problem-solving awareness (Schoen, 1983; Halpern, 1998; Choy and Cheah, 2009; Coutinho, Weimer-Hasting, Skowronski, and Britt, 2005; Kuhn and Dean, 2004; Magno, 2010). Problem-solving awareness abilities and meta-insight are violently connected to foster dynamic support of all circumstances of information. In such manner, meta-perception is so critical for an individual's improvement of Problem-solving awareness since it might give a prompting to foster his/her Problem-Solving Awareness. Effectively, meta-comprehension and Problem-solving awareness lead to high circumstances of cognizance or thinking abilities like rationale, long haul recollecting, and measuring give lesser progress in thought adaptation, choice wood and issue working (Lockwood, 2003). In the mean time, Problem-Solving Awareness is the skill of a person to assume fundamentally viewing his own reasoning known as meta-discernment (Paul, 2004). Grounded on the previous investigation, it's kept up with that Problem-Solving Awareness is gratefully related to meta-cognizance; "Progressions in one are common by headways in other" (Facione, 1992). Halpern (1998) proposed a four-section model of guidance for Problem-Solving Awareness. The last component of Problem-solving awareness guidance is meta-mental observing which eludes to how the understudy utilizes this information to coordinate and improve the reasoning and his/her education interaction. At the point when the researchers are participated in Problem-Solving Awareness, they need to utilize specific meta-mental abilities as understands covering their reasoning cycle, making sure that headway is being made

toward something appropriate, icing delicacy, and making suppositions about the utilization of time and inside inconvenience. Additionally, Kuhn and Dean (2004) address that Problem-Solving Awareness involves care of one's own reasoning and reflection on the reasoning of tone and others as an object of discernment. In the investigation writing, Problem-Solving Awareness that has entered genuinely little consideration from language instructive defenders. Additionally, there has been restricted observational investigation that straightforwardly researches the business meta-mental and Problem-solving awareness in unknown dialect climate.

STUDIES RELATED WITH META-COGNITION AND PROBLEM-SOLVING AWARENESS:

A review of empirical disquisition is considered an important aspect of any study. In fact, looking back at formerly knowledge and disquisition will help us give ourselves for the present. Reviews of applicable studies help researchers count duplication of work done so far, and literature reviews are an important part of the disquisition process. According to JohnW. Stylish, - Nearly all mortal knowledge can be factory in books and libraries. Unlike other brutes that have to start over with each generation, humans are erected on knowledge accumulated and recorded in the history. He continually builds up the stock of knowledge that makes progress possible in all areas of mortal shot. The review of applicable disquisition is a rigorous art of work that requires deep insight in order to give a clear perspective on the field as a whole. The term" review “means to organize compass the structure of knowledge, and to indicate that this disquisition will be complementary to a particular field. The term" literature" refers to a specific area of knowledge in any discipline, including proposition, practice, and disquisition. Nelson and Conner (2008) pointed out the influence of meta-cognition on different literacy stages. The experimenters concluded that the main difficulty scholars face when trying to develop an understanding of meta-cognition is a lack of mindfulness of the literacy process. Indeed at the introductory position, scholars have some introductory understanding of their own knowledge and thinking. According to Gama (2004), meta-cognition is a higher-order thinking process responsible for the active control of cognitive processes. He proposed a meta-cognitive teaching model, named Reflective Assistant, based on the following meta-cognitive skills: (1) problem understanding and monitoring, (2) selection of meta-cognitive skills, and (3) assessment of learning experiences. An empirical study of 27 undergraduate students showed that students who engaged in reflective activities spent more time on tasks and dropped fewer questions. In addition, the group answered significantly more questions correctly than the control group. The results showed that the reflective assistant had a positive effect on the learning process. This reflective assistant model helps develop a positive attitude towards learning in students. Ganesh Ram (2003) studied the effect of meta-cognitive orientation on improving B.Ed's mathematical Problem-Solving Awareness. This study adopted a post-test experimental design. The main finding of the study is.

(1) The experimental group was more successful in solving problems in past tea 1 and past tests

(2) Meta-cognitive awareness was highly negatively correlated with anxiety.

(3) There was no significant mean difference in the problem-solving scores of the first subgroup

of the pretest 1 and pretest 2 experimental groups.

Savithri (2006) conducted a study on the impact of meta-cognitive skills on improving the perceptual skills of high school students in learning geometry. The study was conducted in a

single-arm design, including pre-progression and post-test. The results show that perceptual skills can be enhanced in learning geometry through the use of meta-cognitive skills. It has also been pointed out that learning geometry requires both perceptual and meta-cognitive skills. Annalakshim Narayanan (2009) studied resilience, meta-cognition and complexity. A sample of 114 high school students in the 15-16 age groups was included. In the study criteria, groups on resilience were formed using the median score of the READ subject score distribution. The findings suggest that in the attribution schema investigated in this study. Complex interpretations and meta-cognition have a significant impact on resilience. People with high resilience prefer complex explanations to simple ones to explain human behavior and use meta-cognitive explanations more than people with low resilience. Flavell (1979) was one of the early experimenters to fete meta-cognition as allowing about your thinking or" knowledge and cognition about cognitive marvels". Meta-cognition refers to advanced- order internal processes involved in learning similar as creating literacy plans, using applicable skills and strategies to break a problem, making estimates of performance and calibrating the extent of literacy (Dunslosky & Thiede, 1998). Experimenters distinguish between meta-cognitive knowledge and meta-cognitive regulation (Schraw & Dennison, 1994). Meta-cognitive knowledge is comprised of declarative knowledge (knowing which literacy strategies work and which bones don't work), procedural knowledge (knowing how to use literacy strategies) and tentative knowledge (knowing when and why to use strategies). Meta-cognitive regulation refers to conditioning that control one's literacy, similar as planning, information operation strategies, appreciation monitoring, debugging strategies and evaluation of progress and pre tensions. Thomas (2001) conducted a study “Using a conceit for learning to ameliorate scholars' meta-cognition in the chemistry classroom”. A constructivist frame was used in confluence with an illuminative methodology to probe the effect of an intervention using the conceit" literacy is constructing "on scholars' meta-cognition and literacy processes. The conceit was used to communicate with scholars regarding literacy processes harmonious with constructivism. Scholars were originally plant to be generally non-meta-cognitive regarding their literacy processes. Despite some scholars enjoying meta-cognitive knowledge. Ponnusamy (2003) conducted a study, The Impact of Meta-cognition and Problem Solving Strategies among Low-Achievers in History. The present study investigates the impact of meta-cognitive strategies among lower achievers in secondary seminaries. Important has been said about the use of allowing strategies in the tutoring of History. Still, until now, little emphasis has been given to the use of meta-cognitive strategies in the tutoring and literacy of History. A tutoring task fulfilled in the classroom isn't a signal that literacy has taken place. However, also a meta-cognitive proposition of literacy has to be developed in order to review the outgrowth of literacy, If learners are to be swung the occasion to regulate their own literacy. Grounded on this supposition, an exploration was conducted using a quasi-experimental design with pre- and post-tests. An aggregate of 90 Form 4 scholars were named and they were divided into three groups. The first experimental group was tutored meta-cognitive and problem working strategies while the alternate experimental group entered only meta-cognitive skills. The control group was tutored using traditional strategies. Two preceptors were trained by the experimenter to educate meta-cognitive and problem working strategies for a period of one month. The trial was carried out for 100 days. The end of the exploration was to probe whether meta-cognitive strategies have an impact on tutoring and literacy. The results revealed that the group which entered meta-cognitive and problem working strategies out-performed the other two groups in ideal, private and essay tests, reported advanced meta-

cognitive mindfulness, used more meta-cognitive strategies during problem working, attained advanced meta-cognitive knowledge and could answer further advanced position cognitive questions. With regard to station, both the experimental groups showed more positive station towards the literacy of History compared to the control group. The study showed that meta-cognitive and problem working strategies can have a significant impact on academic achievement, meta-cognitive mindfulness and meta-cognitive knowledge. Also, the skills to use and reflect on meta-cognitive strategies during problem working can bring about a positive station towards the literacy of History and the skills to answer advanced position cognitive questions.

META-COGNITIVE SKILLS:

Meta-cognitive insight alludes to attention to one's own insight — what one does and doesn't have the foggiest idea — and one's abilities to grasp, control, and control one's mental cycles. It incorporates knowing when and where to involve specific techniques for learning and Problem-solving awareness as well as how and for what reason to utilize explicit systems. Meta-discernment is the abilities to use earlier information to design abilities for moving toward a mastering task; make essential moves to issue tackle, consider and assess results, and change one's methodology on a case by case basis. Flavell (1976), who originally utilized the term, offers the accompanying model: I am taking part in Meta-discernment assuming I notice that I am experiencing more difficulty learning A than B.

Meta-mental methodologies are the essential mental capacities we use to think, study, and learn (e.g., reviewing data from memory, dissecting sounds and pictures, making relationship between or looking at changed snippets of data, and making derivations or deciphering message). They assist a person with accomplishing a specific objective, for example, fathoming text or tackling a numerical statement, and they can be separately distinguished and estimated. Interestingly, Meta-mental techniques are utilized to guarantee that an all-encompassing learning objective is being or has been reached. Instances of Meta-mental exercises incorporate arranging how to move toward a learning task, utilizing suitable abilities and systems to take care of an issue, observing one's own understanding of text, self-surveying and self-rectifying in light of the self-evaluation, assessing progress toward the fruition of an undertaking, and becoming mindful of diverting upgrades.

PROBLEM-SOLVING AWARENESS:

Problem-solving awareness is a mental process which is the concluding part of the larger issue process that includes problem finding and problem shaping where problem is defined as a condition of longing for the coming of an unequivocal objective from a present condition that either is not directly moving toward the goal, is far from it or needs more intricate rationale for tracking down a missing depiction of conditions or steps toward the objective. Thought about the most minds boggling of every single scholarly capacity, problem solving has been defined as a higher-request cognitive process that requires the modulation and control of additional daily practice or key abilities. Problem-solving awareness has two major domains: mathematical problem-solving and personal problem-solving where, in the second, some difficulty or barrier is encountered. Further problem-solving happens while moving from a given state to an ideal objective state is required for either living organisms or an artificial intelligence system.

The researcher should elaborate what is the question as the prior step of Problem-

Solving. Additional, researcher must distinguish normal words such as point, Situation, trouble. Even consultant, who should be expert problem solvers, is often confused with the language of Problem-Solving.

DEFINITIONS OF THE PROBLEM:

An issue is chosen by purposes. In the event that somebody needs cash and when the person has minimal expenditure, the person has an issue. Yet, in the event that somebody doesn't need cash, minimal expenditure isn't an issue. For instance, fabricating supervisors are typically assessed with line-activity rate, which is displayed as a level of worked hours to potential complete activity hours. Thusly fabricating directors at times work lines without orders from their deals division. This activity might deliver more than request and make over the top inventories. The over the top inventories might be an issue for head supervisors. In this way, to distinguish an issue, issue solvers, for example, specialists should explain the distinctions of purposes.

WHAT KINDS OF PROBLEMS?

Researcher applies use the word issue to portray a wide scope of circumstances of various significance, from the disturbance of finding that the vehicle battery is level, to the hazardous disappointment of an airplane motor in mid-air. Issues can be characterized comprehensively as circumstances in which we experience vulnerability or trouble in accomplishing what we need to accomplish, for example halting smoking is an issue when you conclude you need to stop yet can't. PC breakdown is an issue on the off chance that it forestalls you finishing work on time.

The stages of problem-solving:

The problem-solving cycle can be separated in various ways and the stages have been given different names. This has been done to make it more clear yet the way things are separated and the marks that are utilized are not significant. To be an effective issue solver you want to comprehend what the stages include and follow them purposefully at whatever point you experience an issue. There are different phases of problem-solving:

1. Identify
2. Explore
3. Set goals
4. Look at alternatives
5. Select
6. Implement
7. Evaluate

META-COGNITIVE SKILLSANDPROBLEM-SOLVING AWARENESS:

Meta-cognition is the mindfulness and comprehension of one's self as a scholar. Master issue solvers and viable scholars of different types are typically mindful masterminds. They plan systems for tackling thinking issues. At the point when they hit obscured rear entryways, they stop, investigate and reflect. Viable masterminds present options for them and pick among them. Understudies abilities to consider their thinking—as thinking and to break down their own techniques are their meta-mental abilities.

In any case, educators can advance attention to techniques for thinking by drawing in their understudies in exercises that require reflection. Understudies can keep and share a—process log where they expound on the cycles they utilize recorded as a hard copy, perusing, or critical thinking by and large. Critical thinking is a complicated way of behaving.

Notwithstanding the amount of involvement or information an issue solver possesses, each new issue circumstance is somehow or another extraordinary, requiring innovative utilization of methodologies for presenting, taking care of and settling the front and center concern. As understudies share their entrances, they gain an attention to options in contrast to their own cycles and the educator can guide them to think about unambiguous methodologies.

JUSTIFICATION OF THE PROBLEM:

Senior Secondary Students face stress and strain. Lots of students face problem during this phase in their life. Senior Secondary Students exhibits high rate of anti-social behavior like stubbornness, demandingness, arguing, teasing, loudness, threatening, cruelty, fighting, disobedience and sassiness and also retaining related problems. There must be some hidden causes of these problematic acts, the significant impairment of everyday functioning of youngsters with unsocial aggressive conduct disorder (Quay in 1986) are not a good sign of their future. Such Senior Secondary Students exhibit relatively pattern of aggressive behavior over time, their problems do not tend to dissipate, but to continue into adulthood.

STATEMENT OF THE PROBLEM:

"A Study on Meta-cognitive Skills of Senior Secondary Students in Relation to Their Problem-Solving Awareness"-

OPERATIONAL DEFINITIONS OF THE TERMS:

Meta-cognitive Skills: Meta-cognitive skills refer to thinking beyond thinking or to aware, monitor and evaluates own mental process.

In the present study Meta-cognitive skills means the skills related to knowledge, regulation and experience of meta-cognition whereas knowledge includes Declarative, Procedural and Conditional. Regulation means – Planning, monitoring and evaluation. The last skill is related to experience or performance of knowledge and regulation related skills.

Problem-Solving Awareness: Problem solving is the frame or pattern within which creative thinking and logic take place. According to Mayer and Wittrock, problem-solving awareness is cognitive dispensation heading for at achieving a thing when no result system is egregious to the problem solver.

In the current review problem-solving awareness implies the abilities connected with the abilities of critical thinking where mental handling is aimed at changing an issue from the given state to the objective state when the issue solver isn't promptly mindful of an answer strategy.

Senior Secondary Students: Senior Secondary Students refer to a period of time of developmental. In the present study senior secondary school means the particular age group of students spanning from 15 -18 years age group of school students.

OBJECTIVES OF THE STUDY:

The present study asserts to meet the following objectives:

1. To study the knowledge about meta-cognitive skills at senior secondary school students.
2. To study the effect of problem-Solving Awareness on meta-cognitive skills of senior secondary school students.

3. To study the effect of problem-Solving Awareness on meta-cognitive skills of senior secondary
   school students of rural and urban area.
4. To develop the meta-cognitive skills among the students of senior secondary school students.
5. To develop the meta-cognitive skills among the students of senior secondary school students
   of rural and urban area.

HYPOTHESES OF THE STUDY:

1. There is significant difference between the meta-cognitive skills and problem-Solving Awareness
   of senior secondary school students.
2. There is significant difference between the Problem-Solving Awareness of senior secondary school
   students of rural and urban area.
3. There is significant difference between the interest among the students of secondary level of rural and urban areas.

DELIMITATIONS OF THE STUDY:

1. This study will be confined aboutmeta-cognitive skills and problem-solving Awareness of rural
   and urban areas students of secondary level in Bulandshahar district.
2. Present study will be confined to secondary level students of Bulandshahar district.
3. The study will be confined to standardized & self-made standardized tool.
4. The study will be confined to only senior secondary school students spanning from 15-18 years.
5. The study will be confined to the limitations of survey method.
6. The study will be confined to the reliability and validity of the tool used in the study.

RESEARCH METHODOLOGY:

Variables of the Study:

The Independent Variable of the Study is:

- Problem-Solving Awareness

The Dependent Variable of the Study is:

- Meta-cognitive skills
- Rural and urban students

METHODS OF STUDY:

Researcher may be required various tools and techniques for collecting the relevant data. Researcher tried to collect the data from each and every area related to the research because every tool and technique is appropriate for collection of information.Different tools and techniques were used for collecting different types of data like- Qualitative and Quantitative.

This present research followed enquiry technique because researcher followed standardized tool/inventory Meta-cognitive Awareness Inventory (Schraw,G.& Dennison 1994) for meta-cognitive skills and self-made tool for Problem-Solving Awareness. The particular tools for collecting data related to this study were used successfully.

POPULATION:
The population of the present research was the students of senior secondary school students of rural and urban area of Bulandshahar district of UP Board.

SAMPLING USED IN STUDY:

Researcher used simple random sampling for this research as a sample. 100 Students were selected from rural and urban area of senior secondary schools in Bulandshahar district of UP Board by simple random sampling.

RESEARCH TOOLS AND TECHNIQUES:

1. Meta-cognitive Awareness Inventory by Schraw,G.& Dennison.
2. Self-made standardized tool/test Problem-Solving Awareness which will be used in Indian situations.

Statistical Tools-

1.Mean
2.Standard Deviation
3.T-test

Table-1:Research Design:

Method	Variables	Sample	Tools	Statistical Analysis
Survey Method	Meta-cognitive Skills	100(50+50)– Senior Secondary Students of Rural and Urban area Students	Meta-cognitive Awareness Inventory (MAI) Standardized Tool Schraw,G and Dennison,R.S. (1994)	Descriptive and Inferential Analysis 1.t-test 2.Mean 3. Retention 4.Correlation and SD
	Problem-Solving Awareness	Self made questionnaire		

Table-2: Characteristics of the population:

Characteristics	Description
Class	Senior secondary school
Age	15-18
Livingness	Rural and Urban
Board	UP Board
Medium of Instruction	Hindi/English

Location	Bulandshahr district of Uttar Pradesh

Table-3 : Population based on Rural and Urban senior secondary school students :

Sr.no	Category	Population	Mean	Standard Deviation	t-value
1.	Rural	50	17.76	2.209072	5.81019E-21
2.	Urban	50	23.9	2.251983	

The researcher finds that T-Value is greater than 1.96, it shows that there is significant difference of meta-cognitive skills and problem-Solving Awareness in relation with rural and urban area students of senior secondary schools ob Bulandshahr district of U.P.

FINDINGS OF THE STUDY:

In this study, researcher investigated the development of problem-Solving Awareness and meta-cognitive skills from senior secondary level using a psychophysical procedure that dissociated meta-cognitive skills from task performance. Overall, there was an interaction between Problem-Solving Awareness and meta-cognitive skills, such that meta-cognitive skills increased with age during adolescence and problem-Solving Awareness. These changes in meta-cognitive skills were independent from potential age-related changes in perceptual task performance or in confidence bias. Although our study was not designed to investigate gender differences, we also found that rural area students varied from urban area students with better meta-cognitive performance. This relationship between meta-cognitive skills and problem-Solving Awareness based on rural and urban area students of senior secondary schools was not observed in our previous study, and future studies should be designed to investigate potential sex differences in more detail with larger samples of male and female participants of all ages.

That is why the researcher finds that it is very needed to work hard in the development of meta-cognitive skills in the students of rural area. The researcher finds various problems in rural area students like retaining, memorizing, catching the tasks etc. whether they are much eager to learn.

SUGGESTIONS FOR FURTHER STUDY:

This is the best quality of good research to inspire the coming investigators in their investigation regarding their research areas. In the present study researcher is come to this conclusion that this present study will be helpful for further study from this point of view. Researcher completed this work on Senior Secondary Students of Bulandshahr district of Uttar Pradesh. On the behalf of this study, it may be applied in various districts, states and regions of India. Coming researchers can use other variables and use other problems belonging Problem-solving awareness, creative thinking and others. Similar studies can be conducted with respect to other aspects and also for different levels of education.

CONCLUSION:

In the concluding lines we may say that the present study may increase and create awareness among the students of senior secondary level students and the teachers belong to senior secondary schools to make use problem solving abilities easier to students. The school, which is the only source for learning skills, offers the students of different categories the same

exposure to the meta-cognitive skills. The researcher has completed this study only in Hindi and English medium schools of Bulandshahr district in Uttar Pradesh.

The findings of the current research revealed that Problem-Solving Awareness affected the students' meta-cognitive skills. Hence, an educational course is recommended to be designed in order to strengthen meta-cognitive strategies and consequently to enhance Problem-Solving Awareness in students. Further, meta-cognitive training workshops are suggested to be held for teachers to develop their understanding of this important component of learning-teaching process. Since Problem-Solving Awareness have positive effects on student's meta-cognitive skills and are required to enhance academic achievement, meta-cognitive strategies are recommended to be taught to the students.

Problem- solving awareness is characterized as the conviction of an individual in one's abilities to break the issue. It appears to be that this component, notwithstanding meta-mental ways to deal with guidance, is impacted by different elements, including tone-checking and arranging (Derry and Hawkes, 1993). These elements are essential for meta-mental variables; their mechanical activity is conceivable on the grounds that they're shaped in researchers because of involvement. Moreover, various different methodologies comparable as issue reformulation, mental information, covering the subtasks, assessment of subtasks and lack of bias, which were proposed by Howard. Shia and Hong (2000) as the qualities of tone-managed students that are compelling in problem-solving can be learned through non-meta-mental activities. Additionally, meta-cognitive is related with different builds like meta-proficiency, problem-solving and stimulation (Schneider and Lockl, 2002), that are accepted to be created by normal directions.

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