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Metacognition, Creativity and Problem solving among Adults

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Abstract: *Metacognition is viewed as the ability to think about one's current cognitive processes (Flavell, 1976). It is also called "cognition about cognition," which plays a top-down regulation role in various cognitive processes. Creativity is the ability to bring into existence something new, which can be either a new solution to a problem, a new method or device, or a new artistic object or form. Problem solving is the analysis and transformation of information toward a specific goal. It is the process of constructing and applying mental representations of problems to find solutions to those problems that are encountered in nearly every context. The aim of the present study is to examine the relationship between metacognition, creativity and problem solving and among adults as well as gender differences in all three. Data was collected from adults that of age range of 18 to 25 years (N=100; 50 male and 50 female) via online mode by using the scales related to all three variables of the study. The findings revealed that there's a negative correlation between metacognition and problem solving. Moreover, anegative correlation was also found between metacognitionand creativity. The correlation found between problem solving and creativity was found to be insignificant. Therewas non-significant no relationship between problem solving and creativity among adults. The insignificant gender differences were found between metacognition and creativity but there's a significant gender difference found between problem solving among adults.*

Keywords: *Metacognition, Creativity and Problem Solving.*

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Introduction:

"Simple shifts in points of view can open doors to expansions of consciousness as easily as rigid dispositions can close hearts and minds to such elevated awareness. It generally depends on whether allow fear and violence to rule one actions or whether one give wisdom, courage, and compassion the authority to do so" (Aberjhani, 2015).

According to Goos, Galbraith, and Renshaw (2000), metacognition is the understanding of one's own thought processes and how to control and monitor them while doing a task. John Flavell first used the word "metacognition" in the late 1970s. He is referred to as this field's father as well. The understanding and control of one's own cognitive processes is known as metacognition, and it has long been recognized as a vital and essential part of original thought and problem-solving abilities.

The capacity to reflect on one's present cognitive processes is metacognition (Flavell, 1976). Ariel et al. (2009) refers to it as "cognition about cognition," and it is a top-down regulatory function that affects a variety of cognitive processes, including memory, learning, decision-making, and other high-level cognition (Son and Metcalfe, 2000; Metcalfe, 2002).

Problem-solving is more than just putting methods into practice; it also requires metacognitive abilities in addition to cognitive strategies. In fact, metacognitive skills are related to problem-solving (Ader, 2013; Mayer, 1998). Problem-solving requires not only knowledge and cognitive skills but also metacognitive skills, including when and how to use knowledge and cognitive resources (Mayer, 1998). Metacognition is one's ability to use prior knowledge to plan a strategy for approaching a learning task, take the necessary steps to solve the problem, reflect on it, evaluate the results or outcome, and modify one's approach as needed. Some researchers have advanced the concept of "creative metacognition," which is a combination of self-knowledge and contextual knowledge. (Feldhusen and Goh, 1995; Davidson and Sternberg, 1998; Kaufman and Beghetto, 2013).

The process of reflecting on one's own learning and thinking is known as metacognition. It entails understanding when you know and don't know something, as well as knowing what to do in certain situations. Put differently, it entails keeping an eye on and making adjustments to one's own learning processes. The foundation for more comprehensive psychological self-awareness, which includes how individuals comprehend themselves and the environment more fully, is provided by metacognitive abilities. All the mental processes involved in any act or process of gaining knowledge, including perception, memory, attention, language, thought, problem-solving, and decision-making, are collectively referred to as "cognition." A second level of meaning known as "meta" frequently has to do with the self. Thus, one's feelings and ideas about learning new information are important to the notion of metacognition. Because they enable an individual to understand one's own internal cognitive processes and how they function, metacognition skills are crucial. This kind of intellectual introspection is applicable to all tasks, such as writing, arithmetic problem solving, and reading comprehension. This awareness can help one learn more effectively and improve individual cognitive function in the classroom, at work, in relationships, and in all other areas of one's lives.

Individuals with strong metacognition skills might enhance their academic achievement by effectively digesting information in an educational environment. Metacognition abilities also facilitate learning new things, such as a foreign language or a sport, and can aid in retention of previously acquired knowledge. Learning becomes easier and more pleasurable when people apply metacognitive learning techniques.

Thus, metacognition contributes significantly to human learning in both cognitive and affective domains. The traits listed below are describing metacognition;

i) The nature of metacognition is deliberate. It starts prior to the development of cognition.

ii) It exists on both an unconscious and conscious level. Even though Flavell believed it to be a conscious cognitive process, subsequent studies revealed that it might also occur in the unconscious mind.

iii) It has intention and foresight. The human mind engages in metacognitive processes initially for the aim of education.

iv) Its goal is to attain a certain learning objective.

v) When learning both cognitive and affective learning tasks, metacognition might occur.

vi) It also calls for self-control and proactive observation. As a result, the student always keeps track of their progress through the learning assignment.

Metacognition can also be defined as self-director, self-monitored, self-regulated, self-assessed, and self-evaluated based on the traits. Jacobs and Harskamp (2012) assert that metacognition plays a crucial role in forecasting learning outcomes within the problem-solving domain. According to Chan (2001), Heppner (1988) introduced three constructs for the problem-solving process: orientation-avoidance coping styles, which refer to an individual's tendency to solve social problems or avoid doing so, problem solving confidence, which is the belief that one can solve the problem, and personal control over emotions and

behaviours, which is the belief that one can control theiremotions and behaviours while solving real problems of life.

Research has verified that metacognition plays a crucial role in problem solving. Therefore, mastering problem-solving techniques and metacognition can give students the right opportunities to govern their learning. More complex problems call for more metacognitive control (Havenga et al., 2013). According to several studies, it is important to support students' academic success through metacognitive methods (Training Safari & Arezy, 2012). Havenga et al. (2013) provided instructional recommendations for the metacognitive approach to problem solving by fusing metacognition with problem-solving techniques. This programme is divided into five stages:

1) Problem analysis, problem planning, problem underlining, major essentials writing, problem revision and articulation, problem monitoring.
2) Solution demonstration and problem monitoring.
3) Organizing the subsequent phases (goal, input, process, and output), considering the goal and procedures of every component or technique, considering the answers and reasons for making decisions.
4) Writing the plans down in a programming, language, evaluating the program, fixing bugs, and explaining the steps.
5) Testing the program, considering the semantics of programming and the program's codes.

The seven steps of the metacognitive process are represented in Montague's (1992) suggested solutions for issue solving:

1) Examine and comprehend the issue.
2) Explain the issue in one's own terms.
3) Show the issue.
4) Hypothesize a solution (a Programme).
5) Estimate a solution (a prediction of the issue).
6) Compute (a computing process); and
7) Verify (ascertain that all is well).

Divergent and convergent thinking are two different processes that lead to the creation of unique and useful ideas or goods, which is what is meant to be called creativity. Divergent thinking involves generating numerous and diverse ideas, whereas convergent thinking involves evaluating and choosing the most appropriate or practical ones. Both of these processes can be enhanced by metacognition, which helps one identify and characterize the issue or challenge that calls for a creative solution, generate and investigate different options and viewpoints using a variety of cognitive strategies and tools, monitor and assess the applicability and quality of one's ideas using criteria and feedback, revise and improve one's ideas using revision and iteration, and communicate and implement ideas using the proper formats and channels. By doing this, one can unleash creative potential and produce original ideas.

The processes of metacognition and creativity are interrelated and mutually influencing. By making it easier to keep an eye on and control one's thoughts while being creative, metacognitive abilities can boost creativity. For instance, metacognitive monitoring enables people to evaluate their approaches to creative thought. Hence, metacognition is being aware of stream of thoughts and analysing it appropriately. It has a great connection to problem-solving and creativity skills. For instance, metacognitive monitoring allows individuals to reflect on their creative thinking strategies and identify when they may be stuck in a mental rut or need to explore alternative approaches.

Creativity is defined as the ability to create anything new, a new solution to an old problem, a new tool or fashion, or a new work of art. California State University, which says, "Creativity is defined as the tendency to induce or recognize ideas, druthers, or possibilities that may be useful in working problems, communicating with others, and entertaining ourselves and others".

Developing new and innovative connections, ideas, and solutions to problems are all corridors of creativity. It's part of what drives us as humans to create rigidity, enlighten delight, and provide opportunities for tone-consummation. Though an idea does not have to be artistic or flawless to be considered creative, living demands daily acts of imagination and new centers in the mind. An act of creativity can be grand and inspiring, analogous as creating a beautiful oil painting or designing an inventive company. Creativity is the capacity to approach an issue or challenge from a fresh or

distinct angle, or to use one's imagination to come up with original or creative results. One's capability to be creative helps one to find new results to challenging issues or to break complicated challenges. Being creative allows an individual to view the world from a different angle. By looking for trends and connecting the blotches, individuals can discover openings in new ways.

The capability to come up with, produce, or find new generalities, options, and results is known as creativity. Extremely creative people constantly have in- depth knowledge of a subject, devote times to it, consider creative results, consult other experts for guidance, and take advised risks. Even though creativity is constantly connected to the trades, it's a vital type of intelligence that inspires invention across multitudinous academic fields. Every aspect of life, from interior design to coming up with new ideas, requires creativity. Different disquisition courses have come together around shared perceptivity and strategies for adding creativity.

1. Strive for affair: Artists with exceptional gift constantly produce their swish pieces at periods of peak productivity. Indeed, while a certain number of pieces may fall suddenly of prospects, there's a good chance that others will be largely creative.
2. Be willing to claw deep: Settlers in the field of artistic creativity constantly isolate themselves, experience violent heartstrings and exploits, and do not stagger to examine themselves.
3. Be pleasurable and open: Openness to Experience, whether it be intellectual, artistic, or emotional, is the personality particularity most nearly associated with creativity.
4. Write down one's ideas: To ensure that an individual flash back them subsequently, make a note of one's ideas as they come to the individual.
5. Adopt or employ outside shoes: If one get embrangle down in the conventions and shoptalk of one's field of moxie, it can be challenging to introduce.
6. Do not be hysterical to put goods off: If individual are driven to find a result, putting anything out can help one suppose of other options and divert one's thinking.

According to different scholars, creativity is the ability to translate experience into unique and significant interpretations. Moreover, creativity is the process of applying aptitude and imagination to create a novel idea or product. Maybe the unique quality that sets humans apart from other animals is our creativity. In the current period of rapid cultural and environmental change, when new ideas and viewpoints are required, it is especially critical to comprehend creativity. The fascinating field of creativity research combines numerous scientific disciplines, including computer simulations, mathematical models, developmental psychology, clinical psychology, social psychology, personality psychology, developmental psychology, organizational psychology, and neuroscience.

It is believed that the ability to switch between divergent and convergent modes of mind in response to task requirements is a necessary component of the creative process. Convergent thought is typically defined as the type of thinking required for tasks where there is only one right answer, whereas divergent thought is typically defined as the type of thinking required for open-ended tasks and is measured by the ability to generate multiple solutions. The following personality qualities are associated with creativity: Impulsivity, self-assurance, tolerance for ambiguity, and openness to new experiences.

Such types of discoveries shaped the "threshold" model of creativity and intelligence, which postulates that intelligence and creativity are not correlated above a certain point (i.e., a highly clever individual may not be as highly creative). It's possible that intellect places restrictions on how much knowledge a person can absorb and remember, but creativity offers the flexibility required to generate novel ideas.

According to Guilford (1967), creativity is essential for both solving the most pressing issues facing humanity and for education in its broadest sense. The Torrance Test of Creative Thinking (TTCT; Torrance, 1966), the Guilford tests (Wilson, Guilford, & Christensen, 1953), or the Wallach and Kogan tests (Wallach & Kogan, 1965) are commonly used to evaluate creative capacity (Runco, 2010).

There is a connection between problem-solving and metacognition and creativity. It is possible to think of creative thinking as a metacognitive process in which an individual's cognitive understanding and

action assessment are combined to produce creation. Particularly, learning new information and skills, repurposing existing knowledge, and validating outputs against both internal and external standards are just a few of the cognitive processes that are involved in creative thinking (Amabile, 1983).

Considering metacognition's critical role in higher-order cognition, it would seem fair to incorporate it in these stages. An intentional selection of relevant past information and the implementation of a work plan are two requirements for every creative effort to succeed. It's Interesting to study creativity. The creative process is not always linear, regardless of how much one study; it sometimes requires switching between different stages as needed. Knowing the many forms of creativity can help one better grasp how to unleash own creative potential and perhaps even inspire one to share one's own potential with those in need.

Problems are an unavoidable part of everyday life. These inconvenient occurrences can cause conflict and obstacles that throw an individual off course. Instead of becoming overwhelmed when issues inevitably arise, one can call upon the various problem-solving methods, skills, and models in this article to navigate the challenges more smoothly. Problem-solving is exactly what it sounds like–it is the intentional planning and execution of practical solutions to issues that come up in one's life.

Problem-solving is an important skill to develop because life will always throw curveballs. Being able to respond to these problems with flexibility and calmness will generate much better results than if respond to the problem with resistance or avoidance. The competitiveness of any problem solver or problem-solving methodology have always been dependent on psychology. Problem solving is about thinking which in turn depends on the type and extent of the behaviour directed toward attaining the solution that usually not readily available, in real life problems. The psychology in problem solving say that one must understand the problem correctly to accurately solve it, as it is the most important cognitive activity in any daily or professional process. Problem solving is the analysis and transformation of information toward a specific goal. It is the process of constructing and applying mental representations of problems to finding solutions to those problems that are encountered in nearly every context. Problem solving is the process of articulating solutions to problems. Problems have two critical attributes.

1) A problem is an unknown in some context. That is, there is a situation in which there is something that is unknown. Those situations vary from algorithmic math problems to vexing and complex social problems, such as violence in society.
2) Finding or solving for the unknown must have some social, cultural, or intellectual value.

Problem solving is a process of cognition that occurs when a goal must be reached by thinking and behaving in certain ways.

Methods of problem solving:

1) Trial and error (mechanical solution): Problem solving method in which one possible solution after another is tried until a successful one is found.
2) Algorithms: Step by step procedure of solving any problem.
3) Heuristic: A guess on the basis of prior experiences that helps to narrow down the possible solutions. Also called as "rule of thumb".
4) Representative heuristic: Assumption that any object (or person) sharing characteristics with the members of a particular category is also a member of that category.
5) Availability heuristic: Estimating the frequency or likelihood of an event based on how easy it to recall relevant information from memory or how easy it is for us to think of related example.
6) The ability to solve problems is a valuable skill to have since life will always present unexpected challenges. The outcomes onegets from handling these issues with composure and flexibility will be far superior to those oneget from resisting or avoiding them. Furthermore, studies have demonstrated the advantages of problem-solving therapy for enhancing problem solving abilities in a variety of medical and psychological conditions.

The method of addressing problems can be broken down into the seven processes that research has found (D'Zurilla &Goldfried, 1971);

1) Attempting to identify a problem when it occurs: Identification of the problem and the information that has been collected, this problem-solving process is very important. The objective is to separate the crucial elements and avoid introducing conflicting elements. This approach has worked well since it makes the process more structured, which speeds up the process of finding answers. In doing this, creativity and the ability to think critically and logically are needed, you can compare alternatives and then consider the various possibilities that exist. This stage is also known as developing alternative solutions.
2) Defining a problem: Defining the problem does not mean only looking at the visible symptoms, but also analysing the real key to the problem. Numerous factors might contribute to the context and impact of an issue. So, at this stage it is important to look at the problem from various perspectives.
3) Attempting to understand the problem: Understand that it must be resolved immediately if problems arise, minimizing bias that may arise. Consequently, to facilitate the process of problem identification, supporting documentation must be provided by someone.
4) Setting goals related to the problem: Once oneis done with the understanding of the problem situation, one must start finding goals to solve that problem. Proper planning and setting of the aim must be done to solve the problem further.
5) Generating alternative solutions: After both long- and short-term goals are set accordingly one must generate or find out alternative solutions to master that problem.
6) Evaluating and choosing the best alternatives: Among the different alternatives searched fix the final one which suits as the best solution to the problem to be solved.
7) Implementing the chosen alternatives: Apply the best-chosen alternative to seek the best results.
8) Evaluating the efficacy of the effort at problem-solving: At last, an overall evaluation must be done of the process, effort and its effective conduct on the problem to be solved.

There are several skills that one can employ to help solve a problem. These abilities are enumerated below along with a brief description of how they fit into the problem-solving process. If one struggle to respond to problems effectively, try developing these skills within oneself to create better outcomes.

Communication: If time allows, talking about one's issue can help identify solutions one had not thought about or allow one to ask for help from someone with more experience. These abilities are enumerated below along with a brief description of how they fit into the problem-solving process. These skills are listed below, along with a brief explanation of how they contribute to the process of problem-solving.

Judgment: Solving problems effectively requires good judgment. For instance, there are situations when the simplest option is also the worst one over time. Part of tackling the problem involves determining which is more crucial: a workable long-term solution or a fast fix.

Creativity: Problems have a wide range of solutions, just as the problems themselves. It frequently takes creativity to come up with the best solution, particularly when dealing with a problem onehave never seen before.

Making Decisions: Finding and implementing the best solution is the last stage in problem resolution. The only way to develop a solution is to act. An individual's capacity to solve difficulties may be impacted if one has difficulty making decisions.

Hence above all for solving a problem there must be a creative mindset and a metacognition skill set of an individual, to deal effectively with the problematic situations in their life. Thus, there are tremendous research signifying the active role play of all the three variables with each other at a time and this research is initiated to fill the gap of research between these three variables together at a time.

Objectives:

The study aims:

1. To explore the relationship between metacognition and problem-solving among adults.
2. To explore the relationship between metacognition and creativity among adults.
3. To find out relationship between problem-solving and creativity among adults.

4. To find out gender difference in metacognition.
5. To examine gender difference in problem solving.
6. To examine gender difference in creativity.

Hypotheses:

On the basis of above objectives following hypotheses were formulated:

1. There will be a correlation between metacognition and problem-solving among adults.
2. There will be a correlation between metacognition and creativity among adults.
3. There will be a correlation between problem-solving and creativity among adults.
4. There will be significant gender differences in metacognition among adults.
5. There will be significant gender differences in problem-solving among adults.
6. There will be significant gender differences in creativity among adults.

Method:

Sample: The convenience sampling method was used for data collection. The total number of sample consisted of 100 adults (50 males and 50 females), having an age range of 18 to 25 years.

Psychological Tests used: The following psychological tools were used for the study as per the requirements:

a) Problem Solving Ability Test (1988, Revised in 2011): The Scale was developed by Dubey and Mathur. The Scale consists of 20 items, measured by objective question. It is applicable for the age range 11 to 25 years. The test is reliable and valid, the reliability coefficient of the Scale is 0.76 and validity is 0.85

b) Mental Imagery Questionnaire (1995): The Scale was developed by Rajamanickam. The Scale consists of VI subtest each have 15 items, total items are 90, which measured on six-point Likert Scale. It is applicable for the 18 to 41 years. The test is reliable and valid. The reliability and validity of the scale is 1.96 and 0.77 respectively.

c) Metacognition Questionnaire – 30 (MCQ – 30) (2004): The Scale was developed by Wells and Hatton. The Scale consists of 30 items, measured on four-point Likert Scale. The test is reliable and valid with reliability and validity of 0.75 and 0.93 respectively.

Statistical tools used: Mean, standard deviation, t-ratio and co-efficient of correlation are used for statistical analysis.IBM SPSS was used to analyze data.

Procedure of Test Administration: The data was collected from adults belonging to various occupations through the online mode. The questionnaire was prepared using google forms which was then sent to participants via email, watsapp and other social media platforms and with informed consent data was collected from each participant. Only those who consented were taken further. Instructions for filling the scale were given before each section.

Design: The design of the study was not so specific. This was a non-experimental study. This was rather a psychological study of hypothesis testing type.

Results and Discussion:

The purpose of the study was to empirically test and assess Metacognition, Creativity and Problem Solving among adults. The results have been given below:

Hypothesis 1. There will be acorrelation between metacognition and problem solving among adults.

Table 1. Coefficient of correlation between Metacognition and Problem Solving among adults

Variables	*r*	Level of significance
Metacognition	-0.89	p<0.01
Problem Solving		

(r value at .01 level 0.254)

In Table 1, the Pearson's coefficient of correlation or the r value obtained is -0.89 which is highly significant at 0.01level of significance. The obtained result indicates a negative correlation between the two variables. Thus, the hypothesis "There will be a correlation between metacognition and problem solving among adults" is accepted.

A study was done by Swanson (1992) and in his research, it was found that there is relationship between metacognition and problem solving in individuals. It suggests that students who are more

aware of their own thinking processes are better able to engage in problem-solving activities effectively.

Hypothesis 2. There willbe acorrelation between metacognition and creativity among adults.

Table 2. Coefficient of correlation between Metacognition and Creativity among adults

Variables	*r*	Level of significance
Metacognition	-0.88	p<0.01
Creativity		

(r value at .01 level 0.254)

In Table 2 the value of coefficient of correlation is -0.88 which is highly significant at 0.01 level of significance. The obtained indicates a negative correlation between the two variables. Thus, the hypothesis “There will be a correlation between metacognition and creativity among adults” is accepted.

A study by Lizarraga and Baquedano (2013) was considered and the results were found to have a moderate correlation between metacognitive knowledge and visual-spatial creativity (e.g., drawing and titling four drawings from provided lines), and similar findings were reported on mathematic creativity (Erbas and Bas, 2015).

Hypothesis 3. There willbe a correlation between problem solving and creativity among adults.

Table 3. Coefficient of correlation between Problem Solving and Creativity among adults

Variables	*r*	Level of significance
Problem Solving	-.002	p>0.05
Creativity		

(r value at 0.05 level 0.195)

Table 3 shows that there the value of coefficient of correlation is -0.002 which is not significant at 0.05 level of significance. which indicates whatever difference appears in the result table is just chance factor. The obtained result does not indicate a correlational relationship between the two variables. Thus, the hypothesis “There will be a correlation between problem solving and creativity among adults” is rejected.

In contrast to the present study a study by Woodel-Johnson, Marcia and Delcourt and Treffinger (2012) was done and it was found that there's a relationship between problem solving and creativity. Their study's primary purposes were to explore relationships between creative thinking abilities and problem-solving styles among high school students and to provide additional evidence relating to the ongoing inquiry and discussion regarding "level and style" in assessing creativity. The 105 participants had a mean age of 16.2 and were enrolled in three high schools with similar demographics and academic offerings. Results of the correlational analyses indicated no significant relationships between creative thinking and problem-solving style variables. These findings provide evidence supporting the independence of level and style in the assessment of creativity.

Hypothesis 4. There will be significant gender differences in metacognition among adults.

Table 4.

Variable	Group	N	Mean	SD	t-ratio	df	Level of Significance
Metacognition	Male	50	70.58	15.177	0.16	98	p>0.05
	Female	50	70.12	13.51			

(T value at 0.05 level is 1.98)

The Table 4 shows that the gender difference in metacognition is not significant at 0.05level which means that whatever difference appears in the result table is just due to chance factor. Here, the null hypothesis is accepted which shows that no difference is found in male and female at 0.05 level of significance.

On the support, there are studies that do not identify differences between men and women regarding the development of metacognitive skills. For example, the research carried out by Onat (2012) aimed at determining the metacognitive awareness level of higher education students stands out. The population that took part in the study corresponded to 92 students, who answered the Metacognitive Awareness Scale (MAS) and thus three dimensions of their metacognitive awareness were defined; first, self-awareness; second, metacognitive strategies, and third, assessment. The statistical analyses determined that there is no correlation between gender and the dimensions of the aforementioned instrument.

Hypothesis 5. There will be significant gender differences in problem solving among adults.

Table 5

Variable	Group	N	Mean	SD	t-ratio	df	Level of Significance
Problem Solving	Male	50	12.3	5.207	2.197	98	p<0.05
	Female	50	10.04	5.079			

(T value at 0.05 level is 1.98, at 0.01 level it is 2.68)

The Table 5 shows that gender difference in problem solving is significant at 0.05 level which shows gender difference in problem solving. Here the null hypothesis is rejected which indicate a difference between male and female at 0.05 level.

In support, some previous empirical evidence indicates that teenage boys 'tendency to outperform girls in the cognitive component of problem solving is, on average, larger in countries with lower gender equality, when this is expressed in terms of the degree to which women have similar employment and political opportunities as men (Borgonovi & Greiff, 2020). This evidence matches findings from the broader literature identifying wider gender gaps in skills in which boys tend to outperform girls—such as mathematics—in the presence of lower societal-level gender equality (Breda et al., 2018; Else-Quest et al., 2010; Guiso et al., 2008).

Hypothesis 6. There will be significant gender differences in creativity among adults.

Table 6.

Variable	Group	N	Mean	SD	t-ratio	df	Level of Significance
Creativity	Male	50	320.26	75.851	-1.373	98	p>0.05
	Female	50	339.16	61.014			

(T value at 0.05 level is 1.98)

The Table 6 shows that gender difference in creativity is not significant at 0.05 level which indicates whatever difference appears in the result table is just chance factor. Here the null hypothesis is accepted which state that no difference is found in male and female at 0.05 level of significance.

In a contrasting study by Matud, Rodríguez and Grande (2007), it was found that gender differences in creative thought were minimal and dependent upon educational level; men with primary or secondary levels were found to score higher than women with the same level of education. However, the differences were statistically significant only on the Figural Originality and Figural Creativity Indices.

Conclusion:

The study proposed to find out the relationship between metacognition, problem solving and creativity among adults and It can be concluded that metacognition plays a significant role in increasing and decreasing problem solving and creativity skills. Moreover, from the result it has seen that there is negative correlation among all the variables. Although many of the theories and review of literature suggested that there is a significant relation among all the variables and a few studies also stated that there is negative correlation among all the variables taken under study.

The gender differences have also been found but those are insignificant in metacognition, problem solving and creativity as metacognition and problem-solving skills are high among males and creativity is high among females in the adult population.

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