

Research Paper

Impact of Metacognition Awareness in Learning Disability

Durga Yadav^{1*}, Dr. S. Anuradha²

ABSTRACT

Metacognitive awareness plays a vital role in improving coping skills by helping learning disability students understand and regulate their cognitive and emotional responses to challenges. It empowers them to understand their unique challenges, regulate their thoughts and emotions, and adopt adaptive strategies for learning and problem-solving. These skills foster resilience and self-confidence, helping them navigate academic and social challenges more effectively. The aim of the study was will metacognition awareness improve coping skill of learning disability children. Sample size of 33 children was taken who were referred for Learning disability clinic. The learning disability was assessed using the Nimhans SLD Index and Kidscope (were evaluated, and then no of therapy sessions (5-10) according to severity were tailored to enhance their metacognition skills and awareness which also enhanced with their coping skills in twin improving the symptoms of learning disability. Spirito et al 1988) was used to assess the coping skill in each child. The metacognition metacognitive awareness improves coping skill of learning disability students. The results of the study showed that the academic performance of these children improved and was statistically significant. In conclusion it was clear that met cognitive awareness improves coping skill of learning disability students.

Keywords: *Metacognitive Awareness, Coping skill, Learning Disability*

Metacognition can be defined as awareness of Chiseled form, the sub components of metacognition include, the feeling of familiarity, of difficulty, (FOD), the estimate of effort required and the estimate of solution correctness. This sequence was Compounded by the pleasure and confidence elicited out of the given task and finally the satisfaction in the result produced. one's own mental functioning. Metacognition includes knowledge, ability and experiences. Metacognitive experiences include the awareness and feelings while encountering and executing the task. Meta is knowledge about itself is more explicitly while learning, remembering and reasoning it. In the more

Metacognition is often described as “thinking about thinking.” It refers to the awareness and regulation of one's own thought processes. This concept involves the ability to problems. The theoretical framework of metacognition refers to the study and understanding of how individuals think about their own thinking. Metacognition involves two key components: monitor, control, and evaluate how one learns, remembers, and solves.

¹Assistant Professor, Nai Subah (Institute of Mental Health and Behavioural Sciences), Varanasi

²Professor, Head of Department of Clinical Psychology, Madhav University, Rajasthan

^{*}[Corresponding Author](#)

Received: March 03, 2025; Revision Received: September 22, 2026; Accepted: September 28, 2026

Impact of Metacognition Awareness in Learning Disability

Metacognitive Knowledge: refers to a person's awareness and understanding of their own cognitive processes. It involves knowledge about how we learn, think, and understand, as well as strategies to optimize these processes. Metacognitive knowledge enables individuals to plan, monitor, and evaluate their learning effectively. **Declarative Knowledge:** Understanding what factors affect one's learning and cognition (e.g., knowing your learning style or recognizing when you need help). Declarative knowledge refers to knowledge about facts, information, and things that can be explicitly stated. It is often described as "knowing that" something is the case. This type of knowledge is concerned with understanding what something is or how something works, rather than how to do it (procedural knowledge) or when to apply it (conditional knowledge) **Procedural Knowledge:** Knowing how to perform tasks or implement strategies (e.g., using a mnemonic to remember information). **Conditional Knowledge:** Understanding when and why to use specific cognitive strategies (e.g., choosing a different approach based on task difficulty).

Key Differences

Aspect	Declarative Knowledge	Procedural Knowledge	Conditional Knowledge
Focus	Knowing what	Knowing how	Knowing when and why
Nature	Static	Dynamic	Contextual
Examples	Facts and definitions	Steps to perform a task	Choosing strategies based on context
Use	Understanding basic information	Performing tasks	Making strategic decisions

Metacognitive Knowledge Enhances Learning through Self-awareness: Helps learners understand their strengths and weaknesses. **Strategic Learning** also encourages the use of effective strategies tailored to individual needs and specific tasks. **Improved Problem-solving** it supports identifying and addressing obstacles in real time and **Lifelong learning** it builds the capacity to adapt learning strategies in diverse situations.

Metacognitive Regulation: The ability to monitor, control, and adjust cognitive processes in real time. It involves in planning e.g. deciding how to approach a task (e.g., setting goals or selecting a study method). It involves in Monitoring e.g. Tracking progress and understanding during a task (e.g., self-questioning or checking comprehension) and evaluating it is Assessing the outcomes of cognitive activities (e.g., reviewing performance to refine strategies).

Theoretical models of metacognition aim to explain how individuals monitor, regulate, and reflect on their cognitive processes. Zimmerman's Self-Regulated Learning Model (2000) explained, Metacognition is integral to self-regulation, enabling learners to manage their behavior, motivation, and learning strategies. In this model there is three phases: - first Forethought: Planning and goal-setting before starting a task. Second Performance: Monitoring progress and adjusting strategies while working. Last one is Self-Reflection: Evaluating outcomes and making adjustments for future tasks. The Pintrich's Model of Self-Regulated Learning (2000) explained Metacognition operates across cognitive, motivational, and behavioral domains. In model there is no. of Processes: Planning-Setting learning objectives and strategies. Monitoring -Tracking comprehension and task progress. Control-Adjusting approaches based on feedback. Reflection -Assessing the effectiveness of strategies post-task. In the latest model of Efklides' Metacognitive and Affective Model of

Impact of Metacognition Awareness in Learning Disability

Self-Regulated Learning (2006) explained Metacognition and affect (emotions) jointly influence self-regulated learning. The Components of this model is Cognitive Monitoring and Control -Traditional metacognitive processes. Affective Monitoring and Control: How emotions (e.g., frustration, satisfaction) influence learning and last is Contribution - Recognizes the role of emotions and motivation alongside metacognitive processes. The Practical Applications of Metacognition in Education like teaching metacognitive strategies can improve student learning outcomes, as students learn to plan, monitor, and evaluate their study processes. In Problem-Solving like developing metacognitive skills helps individuals tackle complex tasks more effectively by improving self-awareness and adaptability. In Therapeutic Contexts like used in Cognitive Behavioral Therapy (CBT) to help individuals identify and modify unhelpful thought patterns.

Metacognition plays a critical role in the academic success of learners, including those with learning disabilities (LD). For individuals with LD, deficits in metacognitive skills can exacerbate their challenges, but targeted interventions to enhance metacognition can significantly improve their learning outcomes. Understanding Metacognition in Learning Disabilities, Students with LD often struggle with difficulty recognizing their learning strengths, weaknesses, and strategies that work for them. They have Challenges in tracking their understanding or progress during a task, limited ability to adjust strategies when they are facing difficulties. Difficulty evaluating the effectiveness of their approaches post-task. These deficits can result in inefficient learning behaviors, such as over-relying on ineffective strategies. They have Failing to recognize when they misunderstand something and difficulty planning and organizing tasks. These deficits can result in inefficient learning behaviors, such as over-relying on ineffective strategies. Failing to recognize when they misunderstand something and difficulty planning and organizing tasks.

Examples in Practice of metacognition in Academic Setting e.g. In Planning: Creating a study schedule for an exam. In Monitoring: Checking whether you understand key concepts while studying. In Evaluating: Reflecting on which topics need more review after taking a practice test. To Develop Metacognitive Regulation Firstly Ask Reflective Questions e.g. In Planning: "What is my goal? Which strategies should I use?" In Monitoring: "Am I on the right track? Do I understand this?" and Evaluating: "What worked well? What can I improve?" then practice self-monitoring to use checklists and progress trackers to stay on task. Lastly set realistic Goals e.g. break large tasks into manageable steps and lastly to seek feedback to regularly ask for input from others to gain new perspectives.

Anxiety and low self-esteem can significantly impact the performance of students with learning disabilities (LDs) by creating additional emotional and cognitive challenges that hinder their ability to learn, retain, and apply information effectively. Anxiety creates a mental state of tension, worry, and fear, which can interfere with cognitive processes essential for learning. Cognitive Overload: Anxiety consumes mental resources that students would otherwise use for processing information. Develop reduced attention span and difficulty focusing on tasks and impaired working memory, making it harder to follow instructions or retain information. Avoidance Behaviours: Anxiety may cause students to avoid academic tasks or social situations where they fear failure to skipping classes, procrastinating on assignments, or refusing to participate in discussions and missed opportunities for skill-building and learning reinforcement. Performance Pressure: Students may feel overwhelmed by the expectation to perform well despite their challenges. Due to pressure develop over thinking or freezing during tests or presentations and Errors in tasks they otherwise know how to complete. Physical Symptoms: Anxiety often manifests

Impact of Metacognition Awareness in Learning Disability

physically, adding discomfort to learning environments. Develops Symptoms like headaches, nausea, or rapid heart rate distract from learning and Inability to concentrate due to discomfort or fatigue.

Low self-esteem refers to a lack of confidence and negative self-perception, which can create barriers to academic and personal growth. Fear of Failure develops students with LDs often equate their disability with being "not smart" or incapable. It effects on students reluctance to try new tasks or participate in class activities and giving up quickly when tasks seem difficult. Negative self-talk develops persistent thoughts like "I can't do this" or "I'm not good enough." It effects to erosion of motivation and effort and decreased willingness to seek help due to fear of judgment. Students with low self-esteem may avoid setting high goals, believing they cannot achieve them. It affects Lack of ambition or drive to improve academic skills and settling for minimal performance rather than striving for potential. Social Withdrawal develops feeling inferior can lead to withdrawal from peers and teachers. Due to this missed peer learning opportunities, like group study session and limited interaction with teachers, reducing access to support and encouragement.

Metacognitive awareness can significantly enhance the coping skills of individuals with learning disabilities (LD) by fostering self-awareness, self-regulation, and adaptive learning strategies. These improvements not only mitigate the challenges posed by LD but also empower learners to approach academic and life tasks with greater confidence and resilience. Metacognitive Awareness Improves Coping Skills. If enhanced their Self-Awareness then Students becomes more aware of their strengths and weaknesses in learning. This awareness helps them set realistic goals and expectations, reducing frustration. Example: A student with dyslexia might recognize that they need more time to read and plan accordingly. If Improved Emotional Regulation or Metacognitive awareness helps learners identify and manage their emotional responses to failure or difficulty. By understanding that challenges are part of the learning process, they are less likely to feel overwhelmed or discouraged. Example: A student can self-talk through anxiety by recognizing that making mistakes is a normal part of growth. Reduced Learned Helplessness with improved metacognitive skills, students are less likely to feel that failure is inevitable. They understand that success is influenced by effort and strategy, fostering a sense of empowerment.

Many studies have shown that the metacognition functioning was proper in SLD people. This might be in the FOD, estimate of difficulty and the estimate of voluntary effort. Among all the metacognitive components feeling of familiarity also eased the execution of the problem in the SLD population. Emotions played a pivotal role in the completion of the task required e.g. the difficulty can be real or perceived which adds to the complexity of the task (EF kids 2006).

The learning difficulty and disability had difficulty in interpreting their inner state and planning of action. The negative emotions affect the working memory and planning. The type of difficulty (real or perceived) and level of difficulty is heightened by feeling of difficulty (FOD). Emotional regulation is very necessary in assessing and over coming of metacognitive experiences. These population lack in copying strategies and can't categorize the tasks entrusted. They don't show to create a personalized method for execution of the task. (Buchel 2003) Thus, metacognitive awareness and experiences played a major role in categorization of tasks. It is the awareness about one's own cognitive thinking about learning a task.

Impact of Metacognition Awareness in Learning Disability

Metacognition was introduced by Flavell in 1970. He affirmed that metacognition on one side refers to the knowledge one has about the cognitive processes product or any other matter relating to them and on the other to the active supervision and consequent regulation and organization of these processes in relation to the objects and processes on which they act. (Flavell 1976 P-232)

There are two parts of metacognition referring to the knowledge of the person and the task and second is the procedural which is metacognitive control which is always directed towards the objective. It can be better understood by eight pillars of metacognition models (Drigas and Mitsea 2020).

This theory is highly relevant in modern world as it 'teaches how to learn' and the capacity to 'learn how to learn'. Metacognition is the degree of consciousness which we have about our own mental processes and secondly the executive part more important in the executive part in learning. Some metacognitive skills are self-reflection, planning and organization, monitoring performance note taking, problem solving, positive self-task, self-questioning.

The aim of a study was conducted to assess the connection between the coping skills metacognition in learning disability children. The Objectives of the study was metacognitive awareness improve the coping skill of learning disability children. The Hypothesis of this study was the impact of awareness of metacognitive there will be no significant improvement in coping skills of learning disability children.

The structure of the study was a total of 33 children were taken who were referred for Learning disability clinic, and then therapy sessions were tailored to enhance their metacognition skills and awareness which also enhanced with their coping skills in twin improving the symptoms of learning disability. Metacognition was evaluated.

The learning disability was assessed using the Nimhans SLD Index and the areas of disability were noted. The Kidscope (Spirito et. al 1988) was used to assess the way of coping in each child.

Number of sessions ranging from 5 to 10 depending on the severity was taken to explain the metacognition awareness and conditioning and the ways. After the end of the sessions, it was seen that the academic performance of these children improved and was statistically significant.

When the number of sessions was completed outcome of the metacognitive awareness can significantly improve the performance of children with learning disabilities (LDs). By helping students understand their own thinking processes, metacognitive strategies empower them to take control of their learning, overcome challenges, and build confidence. There are no of domains were improved after metacognitive awareness of each child:

- Improved Self-Understanding: Students gain insights into their unique learning styles, strengths, and challenges. They can identify areas where they need help (e.g., "I struggle with spelling but excel in creative writing") and Builds self-confidence by emphasizing strengths.
- Enhanced Problem-Solving Skills: Students learn to approach tasks methodically rather than feeling overwhelmed. Encourages breaking tasks into smaller, manageable parts. Example: A child struggling with math word problems can learn to first identify key numbers and operations.

Impact of Metacognition Awareness in Learning Disability

- Better Strategy Selection students become aware of which strategies work best for them in different contexts. They can choose effective tools (e.g., flashcards, diagrams, or repetition) and promotes adaptive learning—using trial and error to refine approaches.
- Reduced Anxiety: Planning and monitoring skills give students a sense of control. After therapy session reduces fear of the unknown by providing structure to their learning process. Example: Knowing how to approach an exam systematically reduces test anxiety.
- Greater Independence: Students develop self-regulation skills that allow them to learn without constant support. They encourage ownership of their academic success. Example: A student can self-check homework for errors without needing a teacher's review.

RESULT AND DISCUSSION

Table no.1 Comparison of Pre-Test and Post-Test Scores for Coping Strategies

Coping Strategy	Pre-Test Mean	Post-Test Mean	Mean difference	t-value	p-value
Adaptive Coping	2.9 (SD = 0.8)	4.3 (SD = 0.7)	+1.4	-8.21	< 0.001
Maladaptive Coping	3.4 (SD = 0.9)	2.2 (SD = 1.0)	-1.2	7.45	< 0.001

Pre-post design with paired t-tests to analyze changes in coping scores. Adaptive Coping Strategies $t = -8.21$, $p < 0.001$: A highly significant improvement was observed in adaptive coping strategies. The pre-test mean score was $M_{pre}=2.9$ and the post-test mean was $M_{post}=4.3$, indicating a mean increase of +1.4. This suggests that children were significantly more likely to engage in problem-solving and seek support after the intervention. Maladaptive Coping Strategies $t = 7.45$, $p < 0.001$: A significant reduction in maladaptive coping strategies was found. The pre-test mean score was $M_{pre}=3.4$ and the post-test mean was $M_{post}=2.2$ reflecting a mean decrease of -1.2. This indicates that children became less likely to rely on avoidance and self-blame post-intervention. The findings demonstrate a robust improvement in adaptive coping strategies and a notable reduction in maladaptive coping strategies following the metacognitive intervention: in Adaptive Coping: The large improvement ($p < 0.001$) suggests that metacognitive awareness enabled children to better regulate their emotional responses and actively engage in problem-solving and seeking social support. Maladaptive Coping: The significant reduction ($p < 0.001$) in maladaptive behaviors implies that children developed healthier ways to manage stress, moving away from avoidance and self-blame.

Table no.2: Comparison of Pre-Test and Post-Test Scores for Metacognitive Awareness

Dimension	Pre-Test Mean (M)	Post-Test Mean (M)	Mean Difference
Knowledge of Cognition	44.3	60.5	16.2
Regulation of Cognition	39.7	55.8	16.1

Knowledge of Cognition: The mean difference of **16.2 points** indicates that children improved their understanding of their own cognitive processes and learning strategies after the intervention. This suggests that the intervention successfully enhanced their

metacognitive knowledge. **Regulation of Cognition:** The mean difference of **16.1 points** reflects an increase in the ability to manage and control their cognitive processes, such as planning and monitoring their learning tasks. This also highlights the effectiveness of the intervention. The **Effectiveness of Intervention**-The consistent improvements in both dimensions (Knowledge of Cognition and Regulation of Cognition) demonstrate the positive impact of the intervention on the metacognitive awareness of children with SLD.

Table no.3: Correlation Analysis between Metacognitive Awareness and Coping Skills

Variable	Mean (M)	Standard Deviation (SD)	Correlation Coefficient (r)	p-value
Metacognitive Awareness	58.2	12.4	0.68	< 0.01
Coping Skills	64.5	10.8		

The correlation coefficient ($r = 0.68$) indicates a strong positive relationship between metacognitive awareness and coping skills. This means that as metacognitive awareness increases, coping skills also tend to improve. The p-value ($p < 0.01$) confirms that this relationship is statistically significant. Thus, the null hypothesis can be rejected, supporting the alternative hypothesis. Children with higher metacognitive awareness are better able to regulate their emotions and behavior when faced with challenging situations, leading to improved coping skills. The findings suggest that interventions aimed at improving metacognitive awareness may also enhance coping abilities in children with learning disabilities.

CONCLUSION

The significant findings improvements in adaptive coping skills and reductions in maladaptive coping strategies, emphasizing the efficacy of metacognitive training in fostering effective coping mechanisms. In conclusion we can say that the impact of awareness of metacognitive there will be significant improvement in coping skills and academic performance of learning disability children. Metacognitive awareness builds critical thinking and adaptability, leading to better performance across subjects. It improves emotional resilience like reduces frustration and builds confidence by promoting success through self-regulation and improve life skills. Metacognitive awareness strategies help in real-world problem-solving and decision-making.

REFERENCES

- Akin, E. (2016). Examining the relation between metacognitive understanding of what is listened to and metacognitive awareness levels of secondary school students. *Educational Research and Reviews*, 11(7), 390-401.
- Cerezo, R., Fernández, E., Gómez, C., Sánchez-Santillán, M., Taub, M., & Azevedo, R. (2020). Multimodal protocol for assessing metacognition and self-regulation in adults with learning difficulties. *JoVE (Journal of Visualized Experiments)*, (163), 60331.
- Garcia, T., & Pintrich, P. R. (1994). Regulating motivation and cognition in the classroom: The role of metacognitive awareness. *Educational Psychologist*, 29(3), 4-14.
- Igier, S., & Valérie, P. (2022). Roles of the metacognition and emotional systems in a categorization task for adults with moderate and severe learning disabilities. *International Journal of Developmental Disabilities*, 68(3), 281-289.
- Jaleel, S. (2016). A study on the metacognitive awareness of secondary school students. *Universal Journal of Educational Research*, 4(1), 165-172.

- Mokhtari, K., & Reichard, C. A. (2002). Assessing students' metacognitive awareness of reading strategies. *Journal of Educational Psychology*, 94(2), 249-259.
- Noureddine, B., Abdellah, B., Mohammed, R., Mohammed, Z., & Amine, K. (2024). Metacognitive functioning in students with learning disabilities or difficulties: A systematic literature review. *International Journal of Learning, Teaching and Educational Research*, 23(10), 475-493.
- Paris, S. G., & Winograd, P. (1990). How metacognition can promote academic learning and instruction. In B. F. Jones & L. Idol (Eds.), *Dimensions of thinking and cognitive instruction* (pp. 15–51). Lawrence Erlbaum Associates.
- Sadri Damirchi, A., & Esmaili Ghazivaloii, F. (2016). Effectiveness of social-emotional skills training on cognitive emotion regulation and social skills in children with learning disabilities. *Journal of Learning Disabilities*, 5(4), 59-86.
- Schraw, G. (2001). Promoting general metacognitive awareness. In *Metacognition in learning and instruction: Theory, research and practice* (pp. 3-16). Dordrecht: Springer Netherlands.
- Spirito, A., Stark, L. J., & Williams, S. (1988). The Kidcope: A brief coping inventory for children. *Journal of Clinical Child Psychology*, 17(1), 12-19.
- Swanson, H. L. (1990). Influence of metacognitive knowledge and aptitude on problem-solving. *Journal of Educational Psychology*, 82(2), 306–314.
- Trainin, G., & Swanson, H. L. (2005). Cognition, metacognition, and achievement of college students with learning disabilities. *Learning Disability Quarterly*, 28(4), 261-272.
- Veenman, M. V. J., Van Hout-Wolters, B. H. A. M., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and Learning*, 1(1), 3–14.
- Wade, S. E., & Reynolds, R. E. (1989). Developing metacognitive awareness. *Journal of Reading*, 33(1), 6-14.
- Wong, B. Y. (1991). Metacognition and learning disabilities. In S. J. Lerner (Ed.), *Learning about learning disabilities* (pp. 231-258). Orton-Gillingham.

Acknowledgment

The author(s) appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author(s) declared no conflict of interest.

How to cite this article: Yadav, D. & Anuradha, S. (2026). Impact of Metacognition Awareness in Learning Disability. *International Journal of Indian Psychology*, 14(3), 2390-2397. DIP:18.01.216.20261403, DOI:10.25215/1403.216