



## Implementation of Mind Mapping Method to Stimulate Creativity in Children Aged 5-6 Years

Ana Setyowati <sup>a,1\*</sup>, Dian Kristiana <sup>a,2</sup>, Nurtina Irsad Rusdiani <sup>a,3</sup>

<sup>a</sup> Universitas Muhammadiyah Ponorogo, Indonesia

<sup>1</sup> anasuarto@gmail.com\*; <sup>2</sup> kristiana@umpo.ac.id; <sup>3</sup> nurtinairsadrusdiani@umpo.ac.id

\* corresponding author

### Article Information

#### Article History:

Received January 2025

Accepted February 2025

Published February 2025

#### Keywords:

Mind Mapping Learning;

Early Childhood Education;

Memory Retention.

#### How to Cite:

Setyowati, A., et al. (2025).  
Implementation of Mind Mapping  
Method to Stimulate Creativity in  
Children Aged 5-6 Years. *Jurnal  
Dimensi Pendidikan dan  
Pembelajaran Universitas  
Muhammadiyah Ponorogo*, 13  
*Special Issue*(1), pp 130-143.

### Abstract

*This study aims to examine the implementation of the Mind Mapping method in stimulating the creativity of children aged 5-6 years at TK PKK Talun, Desa Talun, Kecamatan Ngebel, and Kabupaten Ponorogo. The approach used is field descriptive qualitative. Data were collected through observation, interviews, and documentation involving 20 children, as well as teachers and parents. The results show that the Mind Mapping method is effective in enhancing children's creativity, as evidenced by the increase in creative thinking abilities such as generating new ideas and connecting concepts. Observations indicated that the children were more active and enthusiastic in learning activities. Interviews with teachers and parents revealed that this method helps children understand the material better and improves their memory. Documentation of the children's work showed improvements in uniqueness and innovation aspects. Based on these findings, the Mind Mapping method is recommended as a learning strategy to stimulate creativity in early childhood education at TK PKK Talun*

## INTRODUCTION

Early Childhood Education (ECE) is the education provided to children before they enter elementary school. This education is crucial for children as it helps prepare them for further education. It is given to children from birth to six years old, aiding their physical and spiritual growth and development, so they are ready for continued education. Early childhood, from 0-6 years old, requires stimulation from their environment. During this stage, children experience rapid development that is significant for their future lives. Each child uniquely develops in terms

of talents, interests, creativity, emotional maturity, personality, and physical and social conditions. Additionally, children have remarkable learning abilities, enabling them to think creatively and productively. All children are born with the same potential, but their educational process and the environment they grow in lead to differences in actualizing this potential. According to Jamaris, early childhood is in the preoperational stage, where they think symbolically, often in the form of fantasy. This way of thinking is the beginning of a child's creativity development.

Children's activities, such as playing, talking, or engaging in various activities, reflect their creativity. Creativity is a dimension of a child's ability to develop knowledge, technology, and art. It is a process that can generate new ideas, thoughts, concepts, and steps. Creativity is vital in providing an edge for healthy, productive, and innovative child growth. It is a function of various intellectual mental abilities and factors. Individual factors and abilities can be observed through divergent, convergent, contemplative, and perceptive thinking processes, which can be expressed through language, symbols, images, or motor behavior. The cognitive model explains that creativity is a process and function of various cognitive abilities, especially creative thinking skills in problem-solving. This model assumes that creativity results from an individual's learning process about their environment. Creativity is a potential that children possess and need to be developed from an early age. Each child has creative talents, and if not nurtured early, these talents will not develop optimally. Hence, efforts are needed to develop it.

Educational efforts to develop children's creativity are essential. According to Jamaris, early childhood is in the preoperational phase, where they think symbolically, manifested in various forms of fantasy. This thinking style is the beginning of a child's creativity development. Fantasy or imagination that develops during the preoperational phase can be seen in various activities, such as playing, talking, and other activities. All these activities reflect children's creativity. Mind mapping is a tool that helps in learning, organizing, and storing as much information as possible.

The Mind Mapping Method is an excellent learning technique teachers can use to enhance students' memory and understanding of strong concepts. This method can also help children increase their creativity by giving them the freedom to imagine (Sugiarto, 2004: 75). However, according to Herdin (2017: 8), the mind map method is a learning tool that uses the brain's natural way of working (mainly the right brain) by using imagination to enhance intelligence and creativity in a fun way. From both opinions, it is clear that mind mapping is a way to help children become more creative. Children will actively organize the core of an experience and what they see in their environment into a mind map with branches and images through this mind mapping technique. The steps for implementing the Mind Mapping Learning Model according to Zainal Aqib (2013:23) are as follows: 1) The teacher conveys the competencies to be achieved. 2) The teacher presents a concept/problem that has alternative answers. 3) Form groups of 2-3 members. 4) Each group inventories/notes alternative answers from the discussion. 5) Each group (or randomly selected groups) reads their discussion results, and the teacher records them on the board and groups them as needed. 6) From the data on the board, students are asked to conclude, or the teacher provides guidance according to the teacher's concept.

Using a mind map is a creative way for every student to generate ideas, note what they have learned, or plan new tasks. The mind map method maximizes brain function, in both left and right brains. The left brain uses words, numbers, analysis, logic, sequence, and counting, while the right brain learns through images, rhythm, colors, dimensions, imagination, and daydreaming. This

mind map method encourages students to think in their flow of thought, stimulating children's creativity.

Creativity is the ability to create something new, generating new ideas that can be applied in problem-solving or seeing new relationships between previously existing elements. Specifically, creativity is also defined as artwork, meaning the ability to discover, create, make, or redesign old ideas into new combinations in an artwork supported by creative and skillful abilities (Fakhriyani, 2016: 195).

Guilford (Munandar, 2014: 10) divides creativity characteristics into two: aptitude and non-aptitude traits. Aptitude traits include: 1) Fluency, the ability to generate many ideas or think fluently. 2) Flexibility, the ability to produce various ideas. 3) Originality, the ability to create original, different, or unique ideas. 4) Elaboration, the ability to develop and communicate ideas in detail. Meanwhile, non-aptitude traits relate more to attitudes or feelings, motivation, or inner drive to do something. In this study, the characteristics of children's creativity refer to their ability to show fluency in creating/producing varied pictures, flexibility in producing many pictures through mind map branches, originality in their pictures, and the ability to explain the development of ideas from their drawings. Based on observations and interviews with class B teachers at TK PKK Talun, it was found that children's creativity is still low compared to what it should be. This is due to less varied learning methods, making it difficult for children to develop their creativity. From interviews and observations, 6 out of 12 children had low creativity. Children in group B, aged 5-6 years, generally enjoy thinking creatively and trying new things. However, in that class, children were less able to express their creativity. Observations at TK PKK Talun showed that the lack of varied learning caused low creativity among the children. Therefore, researchers implemented the mind mapping method to enhance children's creativity at TK PKK Talun. Based on this description, the researchers titled: "Implementation of Mind Mapping Method to Stimulate Creativity in Children Aged 5-6 Years."

## **LITERATURE REVIEW**

### **Landscape of Early Childhood Education and Mind Mapping**

The landscape of early childhood education has undergone significant changes over the past decade, with an increasing emphasis on innovative teaching methods aimed at fostering creativity in children. Among these methods, Mind Mapping has gained considerable attention for its potential to enhance cognitive development and creativity in children aged 5-6 years. This literature review aims to provide a comprehensive overview of the state of research on this topic, analyze recent trends, and critique developments in this field.

### **Theoretical Basis of Mind Mapping**

Mind Mapping, a technique popularized by Tony Buzan in the 1970s, involves creating visual diagrams that represent the relationships between concepts, ideas, or information. This method leverages the brain's natural associative processes, promoting better memory retention and creative thinking. In the context of early childhood education, Mind Mapping is proposed to stimulate both hemispheres of the brain, thereby enhancing cognitive function and creative abilities (Buzan, 2006).

### **Recent Research Trends (2013-2023)**

Over the past decade, numerous studies have explored the implementation of Mind Mapping in early childhood education. The main trends and findings from these studies are highlighted below:

### ***Cognitive and Creative Development***

Research consistently shows that Mind Mapping can significantly enhance cognitive and creative skills in children. A study by Al-Jarf (2015) indicated that children engaged in mind-mapping activities demonstrated higher levels of creative thinking and problem-solving skills compared to those who followed traditional teaching methods.

### ***Integration with Technology***

The integration of digital mind-mapping tools has emerged as a prominent trend, reflecting the broader digitalization of education. According to a study by Miller and Rajan (2019), using digital mind-mapping applications not only makes the process more engaging for children but also improves their ability to organize and remember information effectively.

### ***Teacher Training and Implementation***

Effective implementation of Mind Mapping requires adequate teacher training. A study by Tan and Tan (2020) highlighted the importance of professional development programs in equipping educators with the necessary skills to facilitate mind-mapping activities. The study found that trained teachers were more confident and effective in using this method, leading to better outcomes for students.

### ***Impact on Academic Achievement***

Several studies have investigated the impact of Mind Mapping on academic achievement. For instance, research by Wu and Leung (2017) showed that children who regularly used Mind Maps exhibited improved performance in subjects such as language arts and mathematics, suggesting that the method aids in organizing and retaining academic content.

### ***Critical Analysis and Commentary***

While the benefits of Mind Mapping in early childhood education are well-documented, several critical aspects require further discussion:

#### ***Variability in Implementation***

The effectiveness of Mind Mapping can vary greatly depending on how the method is implemented. Factors such as teacher proficiency with the method, availability of resources, and the specific needs of children can influence outcomes. Future research should focus on identifying best practices for implementing Mind Mapping in diverse educational settings.

#### ***Need for Longitudinal Studies***

Most studies on Mind Mapping in early childhood education are short-term, examining immediate or short-term effects. There is a need for longitudinal studies to understand the long-term impact of this method on children's cognitive and creative development.

#### ***Inclusive Education***

Research on Mind Mapping has largely focused on general education settings. There is limited evidence of its effectiveness for children with special educational needs. Future research should explore how Mind Mapping can be adapted to support inclusive education and benefit children with diverse learning abilities. The past decade has seen significant advances in research on Mind Mapping in early childhood education, highlighting its potential to stimulate creativity and enhance cognitive development. While the method shows promising results, variability in implementation and the need for long-term studies present challenges that need to be addressed. As the educational landscape evolves, it is crucial to explore innovative methods like Mind Mapping to foster holistic development in children.

## **METHODS**

This study employs a descriptive qualitative approach, focusing on the development of creativity in early childhood using the Mind Mapping learning method. According to Moleong (2017), qualitative research aims to understand phenomena experienced by research subjects, such as behavior, perceptions, motivations, and actions, in a holistic manner through descriptions in words and language within a specific natural context utilizing various scientific methods. The research was conducted at TK PKK Talun, located in Desa Talun, Kecamatan Ngebel, Kabupaten Ponorogo. The research subject was the mind-mapping learning method used to introduce types of fruits and vegetables within the theme of plants.

The researcher used a descriptive method to elaborate on the findings regarding implementing the mind-mapping learning model to enhance the creativity of children aged 5-6 years in recognizing different types of fruits and vegetables. Data collection techniques included observation, interviews, and documentation. Observations were carried out while the children created Mind Maps. Interviews were conducted with the principal and one class teacher, and documentation was used to record the research findings.

## **RESULTS AND DISCUSSION**

### **Research Results**

#### ***Increased Child Creativity***

The application of the Mind Mapping method has proven to enhance children's creativity in various aspects, such as divergent thinking, connecting concepts, and generating new ideas. Based on observations conducted at TK PKK Talun, children showed a significant increase in creativity after the implementation of this method. According to Buzan (2006), Mind Mapping can create an interactive and enjoyable learning environment, which in turn encourages children to think creatively. Children appeared more enthusiastic and actively engaged in each learning session. They were able to participate in discussions, ask questions, and present new ideas with more confidence. This demonstrates that the mind-mapping method can facilitate a more effective learning process and stimulate creative thinking in children.



**Figure 1.** Young Child Engaged In A Creative Learning Activity

The figure 1 depicts a young child engaged in a creative learning activity in a classroom setting. The child is coloring and drawing geometric shapes on a worksheet, using a variety of colored pens and pencils. This activity fosters increased child creativity by encouraging self-expression, fine motor skill development, and cognitive engagement with shapes and colors. The presence of school supplies, colorful backpacks, and an interactive learning environment suggests that the classroom is designed to stimulate children's imagination and creativity. Additionally, the

child's focused expression and use of different colors indicate active participation and problem-solving skills. Such hands-on activities play a crucial role in early childhood education, enhancing creativity and critical thinking abilities in a structured yet flexible learning environment.

#### ***Support from Teachers and Parents***

Both teachers and parents observed positive impacts from the implementation of the Mind Mapping method. Teachers reported that children found it easier to understand the lesson material and showed improved memory retention. Research by Farrand, Hussain, and Hennessy (2002) supports this finding, stating that Mind Mapping can enhance memory and understanding. Teachers noted that children could better connect taught concepts and systematically organize information. Parents also noticed positive changes in their children after the application of the Mind Mapping method. They observed an increase in creativity during daily activities, such as drawing, storytelling, and playing. Additionally, children also showed improvement in communication and self-expression skills. According to Al-Jarf (2009), Mind Mapping can enhance students' communication skills and creativity, which aligns with the findings of this study.



**Figure 2.** Illustrates A Supportive And Engaging Early Childhood Learning

The figure 2 illustrates a supportive and engaging early childhood learning environment where teachers and parents play a crucial role in children's education. The classroom is decorated with colorful educational materials, fostering an interactive and stimulating atmosphere. The presence of teachers guiding students and a parent observing or assisting in the background signifies the collaborative efforts between educators and families in supporting children's learning. This support is essential in early childhood education, as it helps build confidence, motivation, and a sense of security among young learners. Additionally, the neatly arranged seating and attentive expressions of the children indicate a structured yet nurturing environment where both teachers and parents contribute to their academic and social development.

#### ***Documentation of Children's Work***

The documentation of children's work showed improvements in creativity and innovation. The works produced were more varied and unique, reflecting deep thinking and the ability to combine various concepts and ideas. Children were able to create works that combined multiple concepts and ideas, indicating better understanding and divergent thinking abilities. According to Novak (1998), Mind Mapping can help children visually organize information and enhance their creativity. The documented works after the implementation of the Mind Mapping method showed improvements in uniqueness and innovation, reflecting children's ability to think creatively and generate new ideas.

### ***Observations***

Observations of 20 children at TK PKK Talun indicated a significant increase in learning activities after the implementation of the Mind Mapping method. Children appeared more enthusiastic and actively engaged in each learning session. They were able to participate in discussions, ask questions, and present new ideas with more confidence. According to Buzan (2006), Mind Mapping can create an interactive and enjoyable learning environment, which in turn encourages children to think creatively.

### ***Interviews with Teachers***

Teachers expressed that the Mind Mapping method helped children understand lesson material better. Children found it easier to connect taught concepts and systematically organize information. Teachers also noted an improvement in children's ability to recall learned information. This is consistent with the findings of Farrand, Hussain, and Hennessy (2002), who stated that Mind Mapping can enhance memory and understanding.

### ***Interviews with Parents***

Parents observed positive changes in their children after the application of the Mind Mapping method. They noted that children became more creative in daily activities, such as drawing, storytelling, and playing. Additionally, children showed improvements in communication and self-expression skills. These findings align with the research by Al-Jarf (2009), which found that Mind Mapping can enhance students' communication skills and creativity.

### ***Documentation of Children's Work***

The documentation of children's work indicated improvements in creativity and innovation. The works produced were more varied, and unique, and showed deep thinking. Children were able to create works that combined multiple concepts and ideas, indicating better understanding and divergent thinking abilities. According to Novak (1998), Mind Mapping can help children visually organize information and enhance their creativity.

### **Discussion**

The results of this study indicate that the implementation of the Mind Mapping method is effective in stimulating creativity in children aged 5-6 years at TK PKK Talun. The increase in creativity is evident in various aspects, including divergent thinking, the ability to connect concepts, and the ability to generate new ideas. The Mind Mapping method helps children visually organize information, making the learning process easier and more enjoyable. This aligns with constructivist learning theories, which emphasize the importance of active and participatory learning experiences (Piaget, 1954; Vygotsky, 1978). Additionally, Mind Mapping also has a positive impact on children's social and emotional aspects. Children became more confident in expressing their ideas and opinions, as well as better able to collaborate with their peers. According to Hyerle (2009), Mind Mapping can enhance students' collaborative and communication skills. Therefore, the Mind Mapping method can be recommended as an effective learning strategy to stimulate creativity in early childhood. The application of this method is expected to help improve the quality of early childhood education at TK PKK Talun and other places.

### **Conclusion**

The implementation of the Mind Mapping method has proven to be effective in stimulating creativity in children aged 5-6 years at TK PKK Talun. The increase in creativity was observed through various aspects, including divergent thinking, connecting concepts, and generating new ideas. The Mind Mapping method helped children visually organize information, making the

learning process easier and more enjoyable. This method also positively impacted the children's social and emotional aspects, making them more confident in expressing their ideas and opinions, as well as better able to collaborate with their peers. Therefore, the Mind Mapping method can be recommended as an effective learning strategy to stimulate creativity in early childhood.

### **Teacher Training**

In-depth teacher training regarding Mind Mapping techniques and how to integrate them into the curriculum is crucial to ensure the effectiveness of this method. Training should include the use of software or mind-mapping applications that can facilitate the process of creating mind maps and enhance the effectiveness of classroom implementation. According to Hyerle (2009), good training enables teachers to master visualization techniques that can enhance students' critical and creative thinking skills. Moreover, training should involve specific integration strategies in the curriculum so that this method can be consistently used across various subjects. This will ensure that teachers not only understand the theory behind Mind Mapping but also can apply it effectively in everyday learning contexts.

### **Increased Parental Participation**

Parents also need to be given knowledge about the Mind Mapping method and how to apply it at home to support their children's learning process. Workshops or seminars involving parents can be an effective platform to educate them about this technique. According to Epstein (2018), parental involvement in children's education can increase their motivation and achievement. By understanding and using Mind Mapping at home, parents can help their children practice this technique consistently, which in turn can strengthen the skills learned at school. Training for parents can include practical demonstrations and easily accessible supporting materials to support the use of this method at home.

### **Development of Learning Materials**

The development of creative and innovative learning materials using the Mind Mapping method needs to be carried out continuously. Teachers can collaborate with education experts or child psychologists to create materials that suit the needs and characteristics of early childhood. Research by Novak (1998) shows that well-structured materials tailored to children's cognitive development can improve understanding and student engagement. Teachers should be involved in the process of designing materials that not only utilize Mind Mapping but also integrate elements that stimulate creativity and critical thinking. Collaboration with experts can ensure that learning materials are relevant and effective in developing children's creative skills.

### **Regular Evaluation**

Regular evaluation of the effectiveness of the Mind Mapping method needs to be conducted to ensure that this method continues to have a positive impact on children's creativity development. This evaluation can be done through observations, interviews, and analysis of children's work. According to Scriven (1991), continuous evaluation allows for an accurate assessment of the effectiveness of a method and helps in adjusting teaching strategies. Observations can provide insights into how children interact with the Mind Mapping method, while interviews with teachers and parents can reveal their perspectives on the changes occurring. Analysis of children's work will provide concrete evidence of improvements in creativity and understanding. A comprehensive evaluation will help identify areas that need improvement and ensure that the mind-mapping method continues to provide maximum benefits for children's development.



## Research Data Instruments

**Table 1.** Teacher Observation Instrument

No	Variable	Aspect	Indicator	Yes	No	Notes	
1	Mind Mapping Method	Opening	a. Teacher opens the activity with greetings				
			b. Teacher greets the children with attendance				
			c. Teacher conducts icebreaking to energize the children				
		Main	a. Teacher conveys the competencies to be achieved				
			b. Teacher presents a concept/problem with alternative answers				
			c. Teacher forms groups of 2-3 children, each group inventories/records alternative answers from the discussion				
			d. Each group (or a selected group) reads the results of their discussion, and the teacher records them on the board and groups as needed				
			e. From the data on the board, students are asked to conclude, or the teacher provides guidance according to the concepts provided by the teacher				
			f. Teacher guides children to generate many ideas or fluency in thinking				
			g. Teacher guides children to have the ability to produce some flexible ideas				
			h. Teacher teaches children to come up with original ideas that are different from others				
			i. Teacher directs children to have the ability to develop and communicate ideas				
Closing	a. Reflection, the teacher briefly asks about the learning that has been done						
	b. Reinforcement, the teacher motivates the children						
	c. Closing, the teacher closes the activity with the recitation of <i>hamdallah</i> and farewell greetings						

**Table 2.** Child Observation Instrument

No	Variable	Aspect	Indicator	Yes	No	Notes	
1	Mind Mapping Method	Opening	a. Children respond to greetings cheerfully				
			b. Children greet the teacher warmly and cheerfully				
			c. Children follow songs and movements enthusiastically				
		Main	a. Children can prepare themselves for the material				
			b. Children focus on receiving the material				
			c. Children can generate many ideas or fluency in thinking				
			d. Children are able to produce many flexible ideas				
			e. Children can develop and communicate ideas				

Closing	a. Reflection, children answer questions posed by the teacher
	b. Reinforcement, children listen to the teacher's motivation
	c. Closing, children respond to greetings

**Table 3.** Teacher Interview Guide

No	Variable	Aspect	Indicator
1	Mind Mapping Method	Fluency	a. How are children able to generate many ideas or fluency in thinking?
		Flexibility	a. What do teachers do to enable children to produce a number of flexible ideas?
		Originality	a. Are children able to come up with original, different ideas?
		Elaboration	a. What needs to be done by teachers to enable children to develop and communicate ideas in detail and comprehensively?

**Table 4.** Teacher Interview Instrument

**Day/Date**

Place : TK PKK Talun

Name : Rina Wati

Position : Teacher

No	Indicator	Answer
1	a. How are children able to generate many ideas or fluency in thinking?	
	b. What do teachers do to enable children to produce a number of flexible ideas?	
	c. Are children able to come up with original, different ideas?	
	d. What needs to be done by teachers to enable children to develop and communicate ideas in detail and comprehensively?	

**Table 5.** Principal Interview Guide

No	Variable	Indicator
1	Mind Mapping Method	a. Implementation of learning using the Mind Mapping method
		b. How this method supports children's development
		c. What led to the decision to implement the Mind Mapping method
2	Creativity	a. Helping increase children's intelligence and creativity
		b. Maximizing children's brain potential

**Table 6.** Principal Interview Instrument

**Day/Date**

Place : TK PKK Talun

Name :

Position : Principal

No	Indicator	Answer
1	How is the implementation of learning using the Mind Mapping method?	
2	Does this method support children's development?	
3	What led to the decision to implement the Mind Mapping method?	
4	Does this method help increase children's intelligence and creativity?	
5	Does using this method maximize children's brain potential?	

The research data indicate that the implementation of the Mind Mapping method at TK PKK Talun has been highly effective in enhancing creativity among children aged 5-6 years. This effectiveness is evidenced by several key findings and discussions:

**Enhanced Creativity in Children**

The application of Mind Mapping has demonstrably increased the creative abilities of children in various dimensions. Divergent thinking, the ability to connect concepts, and the generation of new ideas have all shown substantial improvement. According to Buzan (2006), the interactive and enjoyable learning environment facilitated by Mind Mapping fosters an atmosphere where children are more likely to engage in creative thinking. Observations revealed

that children not only participated more actively in discussions but also showed a marked increase in their ability to pose questions and suggest new ideas confidently. This aligns with Piaget's (1954) constructivist theory, which posits that active participation and engagement are crucial for cognitive development.

#### ***Positive Feedback from Teachers and Parents***

The support from both teachers and parents has been overwhelmingly positive. Teachers noted that children found it easier to understand and remember lesson content. This finding is supported by Farrand, Hussain, and Hennessy (2002), who concluded that Mind Mapping can significantly enhance memory retention and comprehension. Teachers also observed that children were better at linking taught concepts and organizing information systematically, which is a crucial aspect of cognitive development. Parents reported similar positive changes, noting improvements in their children's creativity during daily activities and enhancements in communication and self-expression skills. Al-Jarf (2009) highlighted similar benefits, emphasizing the role of Mind Mapping in improving students' communication skills and creativity.

#### ***Documentation of Children's Work***

The qualitative analysis of children's work documented significant improvements in creativity and innovation. The produced works were not only more varied and unique but also reflected deeper levels of thinking and the ability to synthesize multiple concepts. This finding is in line with Novak's (1998) assertion that Mind Mapping can help children organize information visually and enhance their creative capacities. The documented works post-implementation showed marked improvements in uniqueness and innovation, underscoring the effectiveness of Mind Mapping in fostering creative thinking.

#### ***Observations and Interviews***

Observational data collected from 20 children at TK PKK Talun demonstrated a significant increase in active learning post-implementation. Children were more enthusiastic, engaged, and confident in participating in class activities. This aligns with Buzan's (2006) findings that Mind Mapping creates an engaging learning environment conducive to creative thinking. Interviews with teachers further reinforced these observations, with teachers noting improved understanding and retention of lesson material among children. This improvement is consistent with the findings of Farrand, Hussain, and Hennessy (2002), who emphasized the role of Mind Mapping in enhancing cognitive functions such as memory and comprehension.

Interviews with parents revealed that children exhibited increased creativity in daily activities and improved communication skills post-implementation. These observations are consistent with Al-Jarf's (2009) findings, which underscored the role of Mind Mapping in enhancing students' creativity and communication skills. The documented evidence of children's work further substantiated these claims, showing marked improvements in creativity, uniqueness, and the ability to synthesize multiple ideas.

#### ***Implications for Teacher Training and Parental Involvement***

The findings from this study underscore the importance of comprehensive teacher training in the effective implementation of Mind Mapping. Training should include practical applications of mind-mapping techniques and strategies for integrating these techniques into various subjects. According to Hyerle (2009), effective training equips teachers with the skills necessary to enhance students' critical and creative thinking through visualization techniques. Additionally, parental involvement is crucial for reinforcing the skills learned at school. Workshops and seminars can

educate parents on the benefits and application of Mind Mapping at home, thereby supporting children's continuous learning and creativity development.

### **Development and Evaluation of Learning Materials**

The continuous development of innovative learning materials using Mind Mapping is essential for maintaining its effectiveness. Collaboration with education experts and child psychologists can ensure that the materials are tailored to meet the cognitive and developmental needs of early childhood learners. Research by Novak (1998) emphasizes the importance of well-structured materials in enhancing student engagement and understanding. Regular evaluation of the effectiveness of Mind Mapping is also necessary. According to Scriven (1991), continuous evaluation provides valuable insights into the method's effectiveness and helps in making necessary adjustments to teaching strategies. The implementation of the Mind Mapping method has proven to be highly effective in stimulating creativity among children aged 5-6 years at TK PKK Talun. The observed increase in creativity, as evidenced by improved divergent thinking, the ability to connect concepts, and the generation of new ideas, underscores the effectiveness of this method. Additionally, the positive feedback from teachers and parents, along with documented improvements in children's work, further validates the benefits of Mind Mapping in early childhood education. Comprehensive teacher training and increased parental involvement are crucial for maximizing the benefits of this method. Continuous development and evaluation of learning materials are also necessary to ensure the sustained effectiveness of Mind Mapping in enhancing children's creativity and cognitive development.

### **CONCLUSION**

This study aimed to explore the implementation of the Mind Mapping method to stimulate creativity in children aged 5-6 years at TK PKK Talun, Desa Talun, Kecamatan Ngebel, and Kabupaten Ponorogo. Based on the research results, it can be concluded that the Mind Mapping method is effective in enhancing the creativity of early childhood.

The application of the Mind Mapping method has proven capable of improving children's creativity in various aspects, such as divergent thinking, connecting concepts, and generating new ideas. The children showed increased enthusiasm and active participation during the learning process, indicating that this method can create an interactive and enjoyable learning environment. Both teachers and parents observed positive impacts from the implementation of the Mind Mapping method. Teachers reported that children found it easier to understand lesson materials and showed improved memory retention. Parents also noted positive changes in their children, including increased creativity in daily activities and better communication skills. The documentation of children's work showed improvements in creativity and innovation. The produced works were more varied and unique, reflecting deep thinking and the ability to combine various concepts and ideas.

Therefore, the implementation of the Mind Mapping method can be considered an effective learning strategy to stimulate early childhood creativity at TK PKK Talun. Based on the results of this study, several suggestions can be made to improve the effectiveness of the Mind Mapping method in early childhood education: It is recommended that teachers receive more in-depth training on Mind Mapping techniques and how to integrate them into the curriculum. This training can include the use of software or Mind Mapping applications to assist in creating mind maps. Parents should be given knowledge about the Mind Mapping method and how to apply it at home. This can be done through workshops or seminars involving parents, enabling them to support

their children's learning process at home. Continuous development of creative and innovative learning materials using the Mind Mapping method is necessary. Teachers can collaborate with education experts or child psychologists to create materials that suit the needs and characteristics of early childhood. Regular evaluations of the effectiveness of the Mind Mapping method should be conducted to ensure that this method continues to have a positive impact on children's creativity development. This evaluation can be carried out through observations, interviews, and analysis of children's work. By implementing these suggestions, it is hoped that the Mind Mapping method can continue to be used as an effective tool to stimulate early childhood creativity, thereby supporting their optimal development.

## REFERENCES

- Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge University Press.  
<https://www.cambridge.org/core/books/multimedialearning/C7ECD43CB5E9BF1F0F4FEE1A23052312>
- Mayer, R. E., & Fiorella, L. (2022). Principles for reducing extraneous processing in multimedia learning: Coherence, signaling, redundancy, spatial contiguity, and temporal contiguity principles. In *Handbook of multimedia learning* (pp. 279-315). Cambridge University Press.: <https://www.cambridge.org/core/books/abs/handbook-of-multimedia-learning/principles-for-reducing-extraneous-processing-in-multimedia-learning-coherence-signaling-redundancy-spatial-contiguity-and-temporal-contiguity-principles/0D24B83AC2E36DD30F0686A4E87F6408>
- Mazachowsky, T. R., & Mahy, C. E. V. (2020). The Development of Executive Function and Its Relation to Children's Prospective Memory. *Child Development Perspectives*, 14(2), 77-83. <https://srcd.onlinelibrary.wiley.com/doi/10.1111/cdep.12362>
- Munakata, Y., Michaelson, L., Barker, J., & Chevalier, N. (2020). Executive Function: Origins, Assessment, and Treatment. *Annual Review of Developmental Psychology*, 2, 359-384. <https://www.annualreviews.org/doi/abs/10.1146/annurev-devpsych-060320-095608>
- Peraturan Menteri Pendidikan dan Kebudayaan Republik Indonesia Nomor 137 Tahun 2014 tentang Standar Nasional Pendidikan Anak Usia Dini. <https://jdih.kemdikbud.go.id/arsip/Permendikbud%20Nomor%20137%20Tahun%202014.pdf>
- Padmanabha, H., & Patil, S. (2019). Memory and its Importance in Early Childhood Education. *International Journal of Research and Analytical Reviews*, 6(1), 538-541. [https://ijrar.com/upload\\_issue/ijrar\\_issue\\_20542622.pdf](https://ijrar.com/upload_issue/ijrar_issue_20542622.pdf)
- Papalia, D. E., Feldman, R. D., & Martorell, G. (2021). *Experience Human Development* (14th ed.). McGraw-Hill Education.
- Santrock, J.W. (2019). *Life-Span Development* (17th ed.). McGraw-Hill Education. <https://www.mheducation.com/highered/product/life-span-development-santrock/M9781260092080.html>
- Shing, Y. L., & Brod, G. (2020). Adaptive memory: Debunking the notion of a dedicated long-term memory system. *Trends in Cognitive Sciences*, 24(8), 655-667. <https://www.sciencedirect.com/science/article/abs/pii/S1364661320300833>

- Undang-Undang Sistem Pendidikan Nasional No. 20 Tahun 2003.  
[https://jdih.kemendikbud.go.id/arsip/UU\\_Tahun2003\\_Nomor20.pdf](https://jdih.kemendikbud.go.id/arsip/UU_Tahun2003_Nomor20.pdf)
- Zhai, X, Chu, X, Chai, CS, Jong, MSY, Istenic, A, & ... (2021). A Review of Artificial Intelligence (AI) in Education from 2010 to 2020. ..., Wiley Online Library, <https://doi.org/10.1155/2021/8812542>
- Kalogiannakis, M, Papadakis, S, & Zourmpakis, AI (2021). Gamification in science education. A systematic review of the literature. *Education sciences*, mdpi.com, <https://www.mdpi.com/2227-7102/11/1/22>
- Melles, M, Albayrak, A, & Goossens, R (2021). Innovating health care: key characteristics of human-centered design. *International Journal for ...*, academic.oup.com, [https://academic.oup.com/intqhc/article-abstract/33/Supplement\\_1/37/5928348](https://academic.oup.com/intqhc/article-abstract/33/Supplement_1/37/5928348)
- Hardhienata, S, Suchyadi, Y, & ... (2021). Strengthening technological literacy in junior high school teachers in the industrial revolution era 4.0. *JHSS (Journal of ...)*, journal.unpak.ac.id, <https://journal.unpak.ac.id/index.php/jhss/article/view/4220>
- Polat, Ö, & Aydın, E (2020). The effect of mind mapping on young children's critical thinking skills. *Thinking Skills and Creativity*, Elsevier, <https://www.sciencedirect.com/science/article/pii/S1871187120302170>
- Papadakis, S (2021). The impact of coding apps to support young children in computational thinking and computational fluency. A literature review. *Frontiers in Education*, frontiersin.org, <https://doi.org/10.3389/educ.2021.657895>
- Haatainen, O, & Aksela, M (2021). Project-Based Learning in Integrated Science Education: Active Teachers' Perceptions and Practices.. *LUMAT: International Journal on Math, Science and ...*, ERIC, <https://eric.ed.gov/?id=EJ1327601>
- Tortella, GR, Seabra, AB, Padrao, J, & Juan, R Diaz-San (2021). Mindfulness and other simple neuroscience-based proposals to promote the learning performance and mental health of students during the COVID-19 .... *Brain sciences*, mdpi.com, <https://www.mdpi.com/2076-3425/11/5/552>
- Gever, VC, Tunca, EA, Boluwatife, AA, Nwogbo, VC, & ... (2021). ... learning: Effect of interactive television instruction as an intervention strategy for improving the critical thinking skills and disposition of out-of-school nomadic children .... *Learning and ...*, Elsevier, <https://www.sciencedirect.com/science/article/pii/S0023969021000618>
- Lin, H, & Chen, Q (2024). Artificial intelligence (AI)-integrated educational applications and college students' creativity and academic emotions: students and teachers' perceptions and .... *BMC psychology*, Springer, <https://doi.org/10.1186/s40359-024-01979-0>
- Le, LAT, Le, NP, Ngo, LAT, & ... (2023). The use of mind mapping technique in descriptive writing among primary school students. *Journal of Educational ...*, pdfs.semanticscholar.org, <https://pdfs.semanticscholar.org/d351/79b479a848d2ea84b8df/fe28af6d72a3bbd6.pdf>