

# THE USE OF MIND MAPPING IN PLAYING TO HELP YOUNG LEARNERS IMPROVE THEIR KNOWLEDGE

Anita Yus<sup>2</sup>

Early childhood teacher education department, State University of Medan, Medan, Indonesia

\*Corresponding author: anitayus@ymail.com

**Abstract-** This research aims to know teachers' effort in helping children to improve their knowledge by using mind mapping in playing as well as knowledge improvement through it. The method used in this research was Classroom Action Research with two cycles. The research was conducted by using mind mapping technique in playing. The subjects of the research were 4 teachers and 58 children of Group B Dahlia Indah PAUD (Early Childhood Education and Development) Kindergarten. The method used for collecting the data was observation that was done when children were playing and making concept maps. The data were analyzed by using descriptive qualitative and quantitative technique with the criteria of the total words as concepts, the accuracy of placing words in maps, and the concept complexity. The result of the research showed that 1) children were able to develop their knowledge by joining Figures, colors, and words as concepts and sub concepts in mind mapping. There were 28% knowledge improvement and 78% of the children that were able to make a complete mind mapping and the accurate contents of its concepts after giving the treatment by asking children when they were making concept maps; 2) Teachers were able to use mind mapping to help children gain knowledge in playing assisted with questions as directions. The teachers' questions stimulate children to think as well as to improve and develop mind mapping as a sign of children's development knowledge.

**Keywords:** mind mapping, playing, knowledge, PAUD and children

## 1. INTRODUCTION

The society awareness of the importance of early childhood education is developing. Depdiknas (2007) clarifies that the number of young learners in PAUD increases progressively as well as the increase of PAUD itself. The existence of PAUD, kindergartens (TK), Raudhatul Athfal (RA) or playgroups, receives not only a lot of interest, but also criticisms from various perspectives. Wardani (2003) says that the learning activities in PAUD do not motivate children to participate actively yet, as well as not giving enough space for initiative, creativity and self-reliance related to their talent, interest and physical and psychological development. Supriadi (2004) states that education in kindergarten (TK) is misleading as its implication is only as the miniature of elementary school (SD) learning. Then, Gunawan (2003) also mentions that in PAUD learning, children tend to be passive and only follow teacher's orders or instructions.

The learning activities in PAUD are expected to help children improve all of their potentials. Moreover, children are expected to continue the learning activities in next educational institutions. Learning readiness can be developed in various ways. Piaget in Seefeldt and Barbour (2006) shows that the opportunity of exploring during playing is able to develop writing and reading readiness. Through the readiness, children are expected to have some knowledge that is useful for their learning activities in elementary school (SD).

The result of the observation in Dahlia Indah PAUD showed that the learning activities involved play-based activities by using various media. Children were active and joyful to do various learning activities. However, based on the discussion with children, it is found that they were not able to link the words "eyes", "legs", "hands" and "human body" yet. Those words were actually concept and sub concepts of human physical body. It happened to be same with the topic "apple". Children were able to mention "red", "sour" and so on, but not for mentioning what is red or what is sour. The conditions were the indicator for the unstructured and inaccurate concepts. In other words, children had no knowledge yet about the exact and complete concepts.

In learning activity, teacher showed learning objects with the explanation. However, teacher did not assist children yet to structure the knowledge that was useful during playing. The effort of structuring the knowledge was conducted by using mind mapping technique in playing.

The experts agree that playing is children's world. In playing, children make decisions, problem solving, communicating and negotiating. They create imaginations as well as practicing their physical, social and cognitive skills. Children are able to express and practice their emotions through daily experiences and events they face while playing. Through playing along, they take certain role. Unconsciously, children practice to develop their ability to see others' perspective and behave as a leader as well as a follower that will be very useful for associating in adulthood.

Carol and Sue (2006) summarize that playing is unparalleled milieu to support children's development and study. Children will gain better learning endurance by studying through playing than through common learning activities. This statement shows that playing is not only a need for children, but also a strategy. This is the reason for young learners to have more playtimes in the whole day.

Piaget in Colette and MacBlain (2012) states that the best play for children is the contributed one in learning about concept and real activity. Through playing, children have knowledge about similarities, differences, comparisons, etc. The problem is how to help children acquire some knowledge and to see their knowledge development for the purpose of designing suitable learning materials for the characteristics and needs of children's next developmental level.

Maria (2006) says that mind mapping is learning tool that is even useful for preschool education. Mind mapping is able to assist children to see the concept and the link between them and their surroundings as well as externalizing their ideas. Mind mapping also assists teacher to judge children's development and understanding concept, identify misunderstanding concept, and construct children's new knowledge of the previous one. Then, she also emphasizes that mind mapping is useful for teacher to identify children's acquired knowledge and accuracy of the concept. Therefore, it can be stated that mind mapping is applicable for teacher to plan and judge children's study.

According to "dual-coding" theory of information storing (Paivio, 1991), information is processed and stored in two representations of memory: linguistic representation (words or speeches) and visual or nonlinguistic representation (mental Figures or physical sensations). The way knowledge coded in brain has significant implications for learning activity and particularly for helping children acquire and retain knowledge. Then, Marzano, Pickering and Pollock (2001) state that mind mapping is an appropriate method for introducing children to new knowledge by using oral and written language (Figures). By using mind mapping, children try to convey what they know and understand about the linkage of the understood and discovered things, see the connection of ideas, information and concepts, develop analytical thinking skill, and organize their reasonable knowledge. Visual representation also helps children in memorizing information easily.

Mind mapping can be illustrated in Venn diagrams, event chains, time lines and cycle diagrams. The use of mind mapping has functions in describing the similarities and differences of something (for example, animals or humans), presenting the event sequences of stories, explaining the steps of the process (for instance, in creating something), or indicating recurring and interaction events (for example, the water cycle). Katz and Chard (2000) mention that mind mapping is one of the effective methods for early childhood education, particularly in using project approach. Through mind mapping, children will acquire and sort information, theme concepts or topics of stimulated questions and ideas in doing activities.

Novak and Cañas (2006) explain further that mind mapping is a statement proposition of any object or event in the universe that exists naturally or intentionally (developmentally). Proposition consists of two or more interlinked concepts constructed of words and phrases to become a meaningful statement. Proposition is the element that makes concept maps uniquely contain mind maps or structural thinking of something. In the simplest form, concept maps contain only two concepts connected with words as proposition.

Based on the explanation, it can be stated that this research reviewed the way children develop their knowledge as well as the use of mind mapping for early childhood learning to help children clarify, organize, link, and categorize ideas or thoughts and information of a topic. The

problem is how to use mind mapping during playing to help children of Group B acquire some knowledge.

## 2. METHODS

The research was conducted in Group B of Dahlia Indah PAUD kindergarten, Percut Sei Tuan, Deli Serdang, with the research subjects consisting of four teachers and 58 children. The research model was McKernan classroom action research (Hopkins, 2002) consisting of problem identification, problem formulation, hypothesis of the study, the implementation of the study, evaluation and reflection.

The research was conducted in two cycles by using mind mapping technique in playing. In the second cycle, the treatment was conducted by giving questions as instructions to stimulate children to become more focused and critical for a problem or concept. The treatment was conducted in steps as the following: 1) write one word as main concept at the center of a large piece of paper, 2) make string and write another word as sub concept, 3) make other strings as branches for other words as other sub concepts, 4) discuss children's mind maps, 5) review the activity. The data of the research were collected by using observation. Observation was used to gain the data of children's mind mapping activity during playtime. The indicators of the observation were children's activity of having concept in words and children's decision of placing words as concept and sub concepts. The observation was continued by evaluating the result of children's mind mapping based on its completeness, accuracy, and complexity of placing words as concept and sub concepts. Then, the data were analyzed by using descriptive technique for explaining and linking the collected data and percentages. Children's knowledge of the activity is classified into three categories, namely high – if children are able to place words as concept followed by sub concepts; middle – if children are able to place some concept words with one sub concept; and low – if children only find one or two concept words and are able to place them in available template.

## 3. RESULTS

The result of data analysis showed that the activity of finding and matching words of concept and sub concepts from the main concept has developed. In this research, Mind mapping was applied in learning activity of playing “making juice”. The children's activity consisted of two major activities which were “hunting apple” for the first cycle and “tracing my neighborhood” for the second cycle.

“Hunting apple” was an activity in which children were required to find “hidden” words from the teacher. This activity was aimed to expand children's vocabulary. Through the activity, children tried to collect words placed in easily found places as many as possible. After they were done with searching and finding activities, children were required to place the words in available template (see Figure 1). After the template was fully filled, the activity was continued by reviewing children's work. The teacher asked children to tell what was in the concept map template. This activity would help them develop their knowledge.

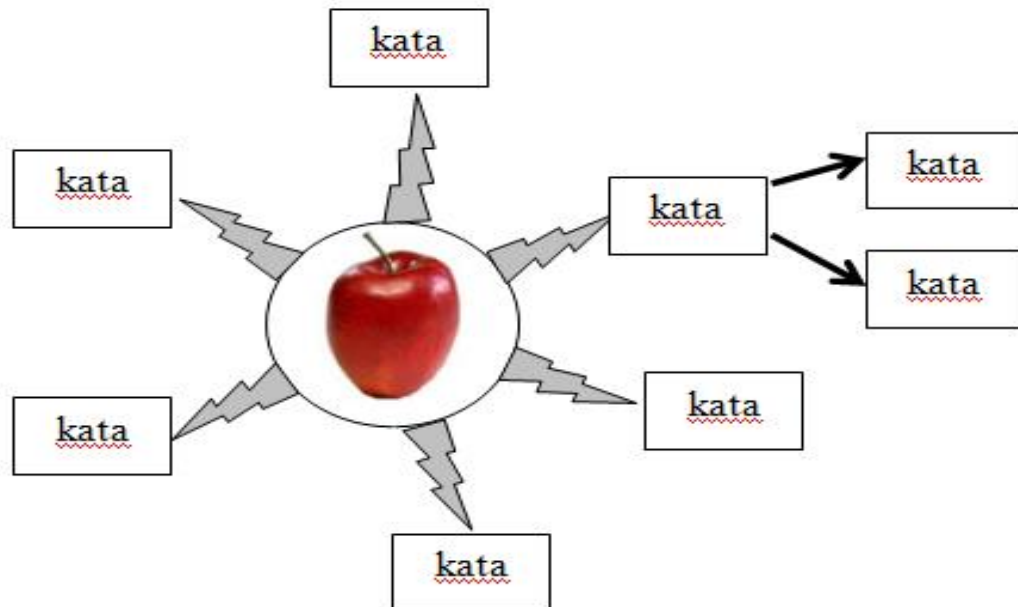
Based on the activities, children's knowledge development was classified in the following Table 1.

**Table 1.** Frequency of Children's Knowledge Development

Development	Cycle 1		Cycle 2	
	Relative	Percentage	Relative	Percentage
High	13	22	27	47
Middle	16	28	18	31
Low	29	50	13	22
Total	58	100	58	100

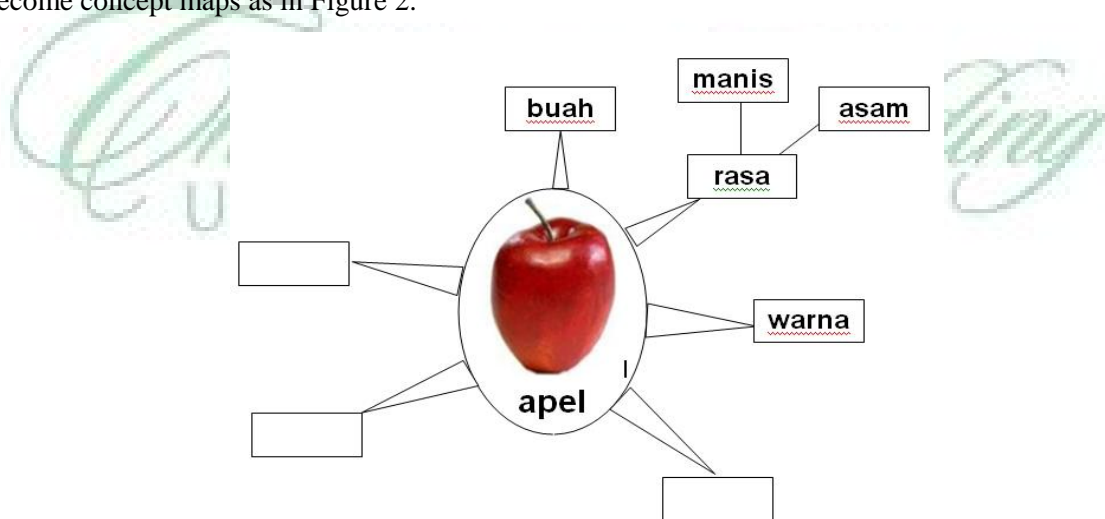
From Table 1, it is known that children's achievement in constructing knowledge of cycle 1 was not maximal yet. There were still 50% of children that were able in making concept maps. The children's difficulties of making concept maps were because of the vocabulary limitation of both concept and sub concept words they have and the hesitation of placing concept and sub

concept words in main concept. Based on the data, the effort of improving children's knowledge was presented in cycle 2 by giving instructions in question forms, like "what word is that?" and "where will you put that word?". The teacher's questions encouraged children to improve and develop their concept maps. There were 78% of children that were able in making concept maps. It means that the development increased 28%. Children's concept maps describe their knowledge.



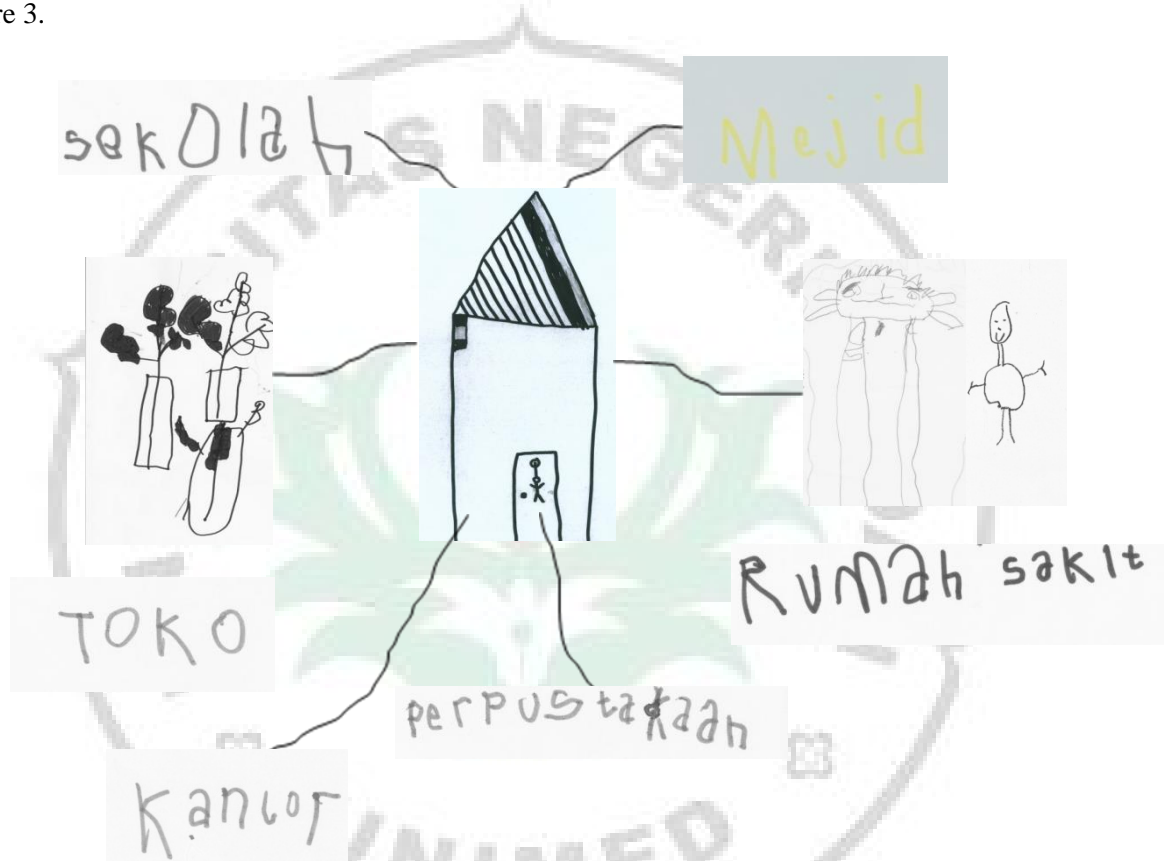
**Figure 1.** Template Given by Teacher for Assisting Children in Making Concept Maps

In the next step, children were required to share their opinion about "apple", like mentioning "fruit". Children were supposed to find a word card with "fruit" written in it. If they did not find it yet, teacher could assist them in searching. After it was found, children were asked to put it next to "apple" Figure. Then, children were asked a question again related to their opinion about "apple". This activity was repeatedly done until children could not share their opinion about "apple" anymore. If the identified concepts of "apple" were not complete yet, children could be assisted to add another concept by observing the apple or "reading" books related to "apple". During observation, teacher asked some instructional questions to encourage children to become more focused and observe it in more detail. The concepts found from the activity were presented in mind mapping of the previous activity to become concept maps as in Figure 2.



**Figure 2.** How to Make Mind Mapping for Developing the Concepts of Kindergarten Children

In cycle 2, children played how to make juice and served it to their family. The activity was initiated by asking children to imagine their house and making juice at home. Children were required to make concept map “neighborhood” to discover children’s knowledge about “neighborhood”. Then, they were asked to draw a Figure and/or write any words related to their neighborhood. After done, children were required to arrange the Figure and the words by drawing “house” at the center of the paper. Other words related to “neighborhood” could be placed around the house or the word “house”. One of children’s work in concept map related to his knowledge about “neighborhood” is presented in Figure 3.



**Figure 3.** Example of Concept Map “Neighborhood”

From the concept map in Figure 3, it is known that the child was able to identify eight concepts. During the presentation, the eighth concepts were mastered and presented by the child by using enhanced Indonesian spelling system (EYD) language that commonly consists of three words. This proved that the child did not only memorize the knowledge, but also master it in the concept and sub concept term. The previous sub concepts did not exist visually. However, the child was able to state everything about the sub concepts orally, like mentioning that there were people, books and prayer rugs in a mosque.

#### 4. DISCUSSION

Children will acquire knowledge by their own efforts. Teacher or other people only have role in assisting them to have the knowledge. The statements are in line with the result of this research that showed that children tend to decide their own knowledge. The research findings showed that children’s knowledge development increased in High category with 47%. It means that 53% of children were not still maximal yet and 22% of children were still in Low category. This was possible to happen as mind mapping was not familiar yet to implement to structure children’s acquired knowledge.

As a reference of national education, constructivism postulates that every learner (child) is a potential individual and able to develop optimally through education. Piaget (1953) also states that a child as a scientist will develop his awareness to the world, and by his awareness, he will develop

some knowledge as the result of his thinking process or mental activity. It means that it is very possible to acquire knowledge. By using mind mapping accurately, children will improve and develop their knowledge by given stimulated questions intensively.

Teacher or other people share the responsibility in encouraging children to have their thinking process of objects or situations. In this research, objects and situations were one world that was introduced intentionally to children through playing activity. The effort of encouraging children to think was presented in words as concept and sub concepts. In line with this research, Hughes (1978) also describes the way children construct their knowledge by playing “policemen” to develop their knowledge about existed and non-existed concepts of an object.

The result of this research showed that the use of mind mapping is able to help children develop their knowledge as the development is a crucial thing for teacher and educators. Not only as an effort for helping children to think, mind mapping is also expected to assist teacher to realize her/his role to develop children’s ability as in Zone of Proximal Development (ZPD) concept and scaffolding by Vygotsky (1981). Other people including teacher has the possibility to assist children to acquire the highest ability of theirs. This describes that the teacher’s role is important in developing children personally as well as their acquired knowledge. One of the efforts in realizing the role is by applying mind mapping with some instructional questions.

## 5. CONCLUSION

The research found that, firstly, mind mapping was applicable to help children construct their knowledge by doing the following steps which are 1) writing one word as main concept at the center of a large piece of paper, 2) making a string and writing the next word as sub concept, 3) making strings as branches for next words as other sub concepts, 4) discuss the concept map, and 5) review the activity. Every step was followed by teacher’s questions as instructions. By following the steps, children acquired knowledge.

Secondly, there were 78% of children who were able to construct their knowledge by the application of mind mapping in playing. The increase of this finding was 28%. The results confirmed that mind mapping was useful to help children construct their knowledge.

## REFERENCES

- [1] Carol, Copple and Sue Bredekamp, *Basics of Developmentally Appropriate Practice: An Introduction for Teachers of Children 3 to 6* (Washington, DC: NAEYC, 2006), p. 20.
- [2] Colette, Gray dan Sean, MacBlain,.(2012). *Learning theories in childhood*. London: Sage Publication Inc.
- [3] Gunawan, Adi,W. (2003). *Genius learning strategy petunjuk praktis untuk menerapkan accelerated learning*. Jakarta: Penerbit PT Gramedia Pustaka Utama.
- [4] Hughes, M.(1978). Selecting Figures of another person’s view. *British journal of Educational Psychology*, 1, 207-19
- [5] Katz, Lilian G., & Chard, Sylvia C. (2000). *Engaging children’s minds: The project approach* (2nd ed.). Stamford, CT: Ablex.
- [6] Maria, Birbili., Mapping Knowledge: Concept Maps in Early Childhood Education Aristotle University of Thessaloniki, 2006, *Journal Early Childhood Research and Practice* Vol 8 no 2 Tahun 2006.
- [7] Marzano, Robert J.; Pickering, Debra J.; & Pollock, Jane E. (2001). *Classroom instruction that works. Research-based strategies for increasing student achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.
- [8] Novak, Joseph D., & Cañas, Alberto J. (2006). *The theory underlying concept maps and how to construct them* (Technical report IHMC CmapTools 2006-01). Pensacola: Florida Institute for Human and Machine Cognition (IHMC). Retrieved October 22, 2005, from <http://cmap.ihmc.us/Publications/ResearchPapers/TheoryUnderlyingConceptMaps.pdf>
- [9] Paivio, Allan. (1991). Dual coding theory: Retrospect and current status. *Canadian Journal of Psychology*, 45(3), 255-287.
- [10] Piaget, J.P. (1953). *The Construction of reality in the child*. London: Routledge and Kegan Paul.
- [11] Seefeldt, Calor dan Nita Barbour, (2006). *Introduction to Early Childhood Education*, New York:Mcmillan College Publishing

- [12] Supriadi, Dedi., (2004). *Membangun bangsa melalui pendidikan*. Editor: Rohmat Mulyana. Bandung: PT Remaja Rosdakarya.
- [13] Vygotsky, L.S. (1981). The Development of higher forms of attention in childhood. In J.V. Wertsch (ed) *The Concept of activity in Soviet psychology*. Armonk, New York: M.E. Sharpe
- [14] Wardani, IG.A.K., (2003). "Pembelajaran berkualitas: Konsep dasar dan penerapannya di lapangan". *Cakrawala Pendidikan E-Learning dalam Pendidikan*. Jakarta: Universitas Terbuka.



THE  
*Character Building*  
UNIVERSITY