The Development of Mind Mapping Learning Model to Increase Group B Students' Multiple Intelligences at Integrated PAUD Al-Furqan in 2019/2020 Academic Year in Kaliwates Jember

Aini Nur Rahmah [1]*, Nanik Yuliati[1], Luh Putu Indah Budyawati[1]
[1]University of Jember, Jember, Indonesia

Email: aini.fkip@unej.ac.id*

ABSTRACT

Early childhood education is an attempt by educators to provide education from birth to age six years. *The highest level of ability children have is intelligence. The intelligence is multiple intelligences. Developing multiple intelligences requires a learning model that is able to develop all intelligences. Based on preliminary observations made at the Al-Furqan Kaliwates Jember Integrated PAUD it was found that the school used a central model. The center model has not been able to develop all the intelligences, becaouse the center uses the center teacher itself is different from the class teacher, so that the intelligence of every child in the center is the center teacher. So the class teacher does not know firsthand the intelligence that every child has. This research was conducted to create a new product learning model entitled the development of mind mapping learning models to develop multiple intelligence in the B group of Al-Furqan Kaliwates Integrated PAUD Jember Academic Year 2019/2020. This study aims to find out how the development of learning models and the results of developing mind mapping learning models to develop multiple intelligence. This research uses the R&D method (research and development). Design development uses the ADDIE approach (Analysis, Design, Development, Implementation and Evaluation). Data analysis techniques usiang 1) validation data; 2) practicality data analysis; and 3) effectiveness data abalysis. The results of the development of a mind mapping learning model to develop multiple intelligences is 1) validity aspects usiang validation sheets and RPPH are categorized valid based on the results of the validator's assessment; 2) aspects of practicality based on learning using the teacher's ability to manage the mind mapping learning model and observing/evaluating the implementation of the mind mapping learning model fulfilling good and high interpretations, because*

the instructor's activities are observes through the observation sheet, and then 3) aspects of the effectiveness of learning usiang the activity instrument children through 3 trials are interpreted to be very high, medium and very high, because bassed on the results of the overall average score of the child's activity and the teacher's response to the mind mapping learning model.

INTRODUCTION

Early childhood is children aged 0-6 years which is called the golden age (golden age), which at that age children have a lot of potential to be developed. All the potential of early childhood should be worth getting an appropriate education to individual existence. The statement in accordance with the opinion Sujiono stating that early age children are the future generation that has the potential to grow and develop optimally, the education provided must be decent and in accordance with the otherness of the individual (Sujiono, 2010: 2).

The education provided in early childhood are able to develop capabilities, because at an early age one of the highest levels of intelligence capabilities. Intelligence is a high skill level possessed by humans, especially early childhood (Sujiono, 2010: 48). Intelligence is a high skill level possessed by humans, especially early childhood (Sujiono, 2010: 48). The level of intelligence will help your children deal with problems that arise in life. Early childhood has a different intelligence although there is one intelligence highlighted. This intelligence will be better if it was developed as early as possible by providing stimulation to his senses fifth. Intelligence for Gardner cited by (Sujiono, 2010: 48) did not look at human intelligence based on scores alone and not one that can be seen or counted, but the size of the capabilities described as follows. (1) the ability to solve problems; (2) the ability to generate new problems to be solved; (3) the ability to create something or reward for one's culture. This intelligence is called multiple intelligence.

According to Garner in (Sujiono, 2010: 49) Intelligence plural (multiple intelligence) is a descriptive assessment see how people use their intelligence to solve problems and produce sesustu. The plural aspects of intelligence consists of; linguistic, logical-mathematical intelligence, visual-spatial intelligence, kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence, naturalistic intelligence and spiritual intelligence (Sujiono, 2010: 55-64). To develop the required nine multiple intelligence learning model. The learning model is a design or designs that describes the process of breakdown and the creation of environmental situations that allow children to interact in learning, so that there is a change or development in children (Mutiah, 2010)

Based on the results of preliminary observations, it was found that the use of early childhood learning models Integrated Al-Furqan the model centers. There are six centers were used, namely; preparation centers, centers beams, natural materials centers, art centers, centers of MPB (Main Role Large) and MPK (Main Small Role), as well as centers IMTAQ (Iman and Taqwa). Each center with different teachers, teacher centers

focus only on what is in the center. Suppose that in preparation centers are the focus of the center is related to the preparation of literacy. Teacher centers are reporting development of a child at the classroom teacher. The class teachers receive a progress report or assessment of teacher centers, so that classroom teachers do not see firsthand intelligence of children in each center.

Mind Map(A mind map) is a model that is designed to assist students in the learning process, store information such as the subject matter is received by the students during the learning and help students prepare cores importance of the subject matter in the form of maps, graphs and symbols so students more easily remember the lesson (Syria, 2015: 185). Mind maps can help the child to classify the information obtained and poured in a paper by combining the branches through writing and colorful images. So the researchers are interested in making modifications to a mind map as a model of learning to develop multiple intelligences

Mind Mapping learning model is a model of learning that develop multiple intelligences. This model is modified from centers of learning models, where the model learning centers of learning approaches, at any learning process is carried out in a circle, from beginning to end the activities carried out in the circle as a foothold before and after play (Mutiah, 2010: 133). Model centers performed at each grade and moving every day, so in one day students can only be in one place centers. Therefore Mind Mapping learning model has a different innovation centers learning model which is a technique to record information obtained and able to classify information into a mind map to develop multiple intelligences.

Based on the above problems, so researchers made an innovation to develop multiple intelligences, namely "*The Development Of Mind Mapping Learning Model To Increase Group B Students' Multiple Intelligences At Integrated Paud Al-Furqan In 2019/2020 Academic Year In Kaliwates, Jember"*

METHODOLOGY

The type of research used is development research or Research and Development (R&D) to produce a product. The development model used is the addition of ADDIE which stands for Analysis, Design, Development, Implementation and Evaluation. This model was developed by Robert Maribe Branch

This research was carried out in PAUD Al-Furqon Integrated at Jalan WR. Supratman II No. 20 Kauman Village, Kepatihan Village, Kaliwates District, Jember Regency. The subjects of this study were children of the B3 group in the Al-Furqan Kaliwates Jember Integrated PAUD with 13 children in the B3 group. Data collection techniques used were expert validation, questionnaires, observation sheets and documentation. The data analysis technique used is expert validation, practicality, and effectiveness data analysis.

Validity data analysis is done to evaluate the validity of the product by recapitating the scores of all aspects (Ai), indicators (Ii), and values (Vji) for each validator, on the validation sheet with the formula:

$$I_i = \frac{\sum_{j=1}^{n} V_{ji}}{n}$$

The results obtained are then written in the appropriate table. Calculate the overall average:

$$Va = \frac{\sum_{i=1}^{n} IA_j}{n}$$

After making conclusions about validity based on Table 1.

Table 1. Categories of validity levels

Mangnitude Va	Interpretation
$0 \leq Va < 1$	Less Valid
$1 \leq Va < 2$	Kurang Valid
$2 \leq Va < 3$	Quite Valid
$3 \leq Va < 4$	Valid
$Va = 4$	Very Valid

Practicality data analysis is data that illustrates the implementation of learning activities using mind mapping learning model instruments. The following are activities to analyze the practicality of observational data, namely recapitulation of observational data on learning outcomes with a mind mapping learning model into a table that contains: aspects (Ai), indicators (ii), and values (Pji) for 8 meetings, determine the average the average value of the results for each aspect of observation using the formula.

$$A_i = \frac{\sum_{j=1}^{m} I_{ji}}{m}$$

The results obtained are written in the appropriate table column. Determine the IO value or the total average value of the average value for all aspects with the formula.

$$IO = \frac{\sum_{i=1}^{n} A_i}{n}$$

Based on the OI values obtained, the level of practicality and feasibility of the media can be accepted from the scale agreed in the following table.

Table 2. Categories of Workability Levels

Mangnitude IO	Interpretation
$0 \leq IO < 1$	Very Low
$1 \leq IO < 2$	Low
$2 \leq IO < 3$	Is
$3 \leq IO < 4$	High
$IO = 4$	Very High

Source: Hobri (2010: 54-56)

Analysis of product effectiveness data is needed by three indicators, namely children's activities, teacher responses, and the ability of teachers to manage the learning model. Data Analysis of Observation Results of Children's Activities were analyzed using the following steps. Assessment of learning outcomes by using mind mapping learning models to develop multiple intelligences in children. Data obtained from observations, analyzed by collecting individual children (Masyud, 2016: 341). Following calculations calculation of children's learning outcomes.

$$pi = \frac{\Sigma srt}{\Sigma si} \text{ x } 100$$

Overall class data is obtained by calculating the overall average value (Masyhud, 2016: 343) using the following formula:

$$pk = \frac{\Sigma srtk}{\Sigma sik} \text{ x } 100$$

The level of competency approval shows the percentage of students on the basic material determined on the basic competencies that have been set. Criteria for completeness of student learning is the minimum score which is ranked 60 and the maximum score of 100. The following score intervals in determining the level of mastery of students.

Table 3. Level of student mastery

Mangnitude Va	*Interpretation*
$0 \leq$ TPS <40	Very Low
$40 \leq$ TPS <60	Low
$60 \leq$ TPS <75	Is
$75 \leq$ TPS <90	High
$90 \leq$ TPS <100	Very High

Source: Hobri (2010:58)

Analysis of teacher responses to learning. Teacher response data obtained from questionnaire / questionnaire assistance were analyzed and presented. How to receive teacher questionnaire data by making a list of questions asked to the teacher. Selection criteria are approved, the learning model is applied, if it meets several requirements, namely 1) learning that is followed by at least 80% of children who are able to achieve a minimum score of 60 (maximum score of 100) based on a test of given learning outcomes, 2) planning the ability of teachers that support learning minimally good. Positive responses received by teachers at least 80% response to a maximum of 100%. Diana (in Hidayati, 2017: 59) said that the percentage of teachers can be analyzed using formulas.

$$IO = \frac{\sum_{i=1}^{n} A_i}{n}$$

The results of teacher response calculations are then written in the appropriate table and referred to on the interval scale.

Table 4.Category of Teacher Response Levels

Percentage γ (%)	*Interpretation*
$0 \leq$ TPS <40	Very Good
$40 \leq$ TPS <60	Well
$60 \leq$ TPS <75	Enough
$75 \leq$ TPS <90	Less
$90 \leq$ TPS <100	Very Poor

Source: Sukardi (Hidayati, 2017: 60)

Data on the results of evaluating the ability of teachers in the learning model that is implemented by finding the category values from several aspects given by observers for 8 learning plans. Activities undertaken to analyze data.

a. Recapitulate the results of the assessment for a table that contains: aspects (aj) and criteria (ki) for 8 lesson plans.
b. Look for the category value (NK) of the average criterion value (NKRi) in each aspect of Assessment by formula.

$$NK_j = \frac{\sum_{i=l}^{n} NRK_{ij}}{n}$$

c. Search for NKG by searching for the average value of a category with a formula.

$$NKG = \frac{\sum_{i=l}^{m} NK_j}{m}$$

d. Looking NKG by finding the mean value of the category with formula

$$NKG = \frac{\sum_{i=l}^{m} NK_j}{m}$$

Furthermore, the average value of the category (NKG) is referred to at inyterval determining the level of teachers' ability to manage learning with the following model.

Table 5.Value Capability Teachers

The amount NKG	Interpretation
$1 \leq NKG < 2$	Not good
$2 \leq NKG < 3$	Not good
$3 \leq NKG < 4$	Pretty good
$4 \leq NKG < 5$	Well
$NKG = 5$	Very good

Source: (Hobri: 2009: 92)

RESULT AND DISCUSSION

Research products developed is through the syntax learning model *mind mapping* and the necessary learning tools in the development tests that RPPH. This discussion elaborates on the achievement of the relevant aspects of product quality criteria have been developed. The aspect consists of the aspect of validity, practicality and effectiveness. Product is feasible if it meets three criteria. The study included research and development (research and development).

The development of research used to develop multiple intelligences of children in group B Integrated ECD Al-Furqan Kaliwates Jember. Development model used is the approach ADDIE (Analysis, Design, Development, Implementation and Evaluation).

First, the analysis phase aims to analyze the state of what should be analyzed related to needs analysis, curriculum and character of students. The results of a needs analysis consists of 1) The condition of human resources in early childhood Integrated Al-Furqan very well can be seen from the number of students and number of teachers at the school. Group B or D hall consists of 82 children and the number of teachers and staff consists of 47 people; 2) learning model used Integrated ECD Al-Furqan ie using model centers. There are six centers were used that consists of a beam centers, art

centers, centers of MPB (Main roles Large), MPK (Main Small Role), IMTAQ centers, and centers of centers of natural materials; 3) Means and infrastructure in Al-Furqan Integrated ECD very adequate ranging from indoor and outdoor facilities. Indoor means comprises means beam centers, art centers, centers of MPB (Main roles Large), MPK (Main Small Role), IMTAQ centers, and centers centers of natural materials. Means outdoor consists of super slide, plank, swing, ladder compound, the chain bridge shake, combs, cobwebs, carousel etc.

The results of the analysis of the curriculum consists of; 1) The curriculum used is the curriculum in 2013 that some of the curriculum is tailored to the needs of the school. Basic Competency (KD) that is used to develop the six aspects of the development, when viewed from the six aspects in which there are eight multiple intelligences. So the basic competencies that already exist can be added to develop multiple intelligence; 2) The theme used in the first semester of that school theme, digestive system, ants, dragonflies, cassava, and pilgrimage. Each theme is used has a span of two weeks and on Friday in the second week held the summit theme; 3) Penenlitian that researchers do use the material about the ants. The content of the material consists of material about the types of ants, ant colony, cycle ant, ant food, shelter ant, body parts of ants, and the ants song lyrics; 4) Basic competencies are used for two weeks, namelydemonstrate proficiency in expressive (express language in verbal and non-verbal), demonstrated literacy skills early in various forms of work, familiar with a variety of works and art activities, resolve everyday problems creatively, presenting various works related to the natural environment (animals, plants , weather, soil, water, rocks, etc.) in the form of pictures, telling stories, singing, and gestures, deliver on what and how the objects around a familiar (name, color, shape, size, pattern, nature, sound, texture, function, and other features) through these products, use of limbs for gross and fine motor development, recognizing the needs, desires, and interests themselves, shows the work and activities of art using various media, and memiliki behavior that reflects the attitude of caring and willing to help if asked to help, knowing the various works and art activities; 5)The formulation of the learning achievement indicators taken from the characteristic of each intelligence are formulated, namely anak able to convey the work of mind mapping orally with either (Linguistic), children are able to write key words from each chapter on mind mapping (Linguistic), children are able to choose a lot of vocabulary (Linguistic), the child is able to hum or sing in accordance with the lyrics written (Musical Intelligence), the child is able to classify of each function and the relationship (Intelligence Mathematical Logic), the child is able to create an image as illustrated in mind (Intelligence Visual Spatial), the child is able to create works of ingredients has been provided (Kinesthetic Intelligence), children are able to cut out pictures and paste with the right (Kinesthetic Intelligence), children are able to cooperate in determining the activities to be selected with the group (Interpersonal Intelligence),children are able to communicate the activities to be carried out with the group well (Interpersonal Intelligence), the child is able to determine the interest that will be done on the activities of the mind mapping (Intrapersonal intelligence), and the child is able to be creative with natural materials (dried leaves) (Intelligence Naturalistic).

The results of the analysis of the character of students, namely; 1) keminatan and your child's favorite activities. Based on the results of interviews that researchers do in school Integrated ECD Al-Furqan in hall D grade teacher group learners B3 that character when seen from a child keminatan level that have a high curiosity megenai

new things fun. Examples of information boards made by the teacher raises the attractiveness of the child, but there are still some children who can not read fluently. There are seven children who can read fluently, four children read syllables, and two children learn syllables. But children still can not read have a high curiosity towards an information board that resembles a mind mapping made by the teacher. Teachers at B3 group said that the rate of children in mind mapping keminatan of 80%. Characters learners can also be seen from the activities preferred by children in group B3 is an enjoyable activity like new things; 2) Academic ability for each individual there kemiripa of every child, because basically all academic achievement at the age of 5-6 years the same goal.

Second, the design stage or the design is the design process before researchers design a mind mapping learning model with pass 1) selection of models; 2) the selection of formats; 3) a preliminary draft. Selection of learning models were conducted to determine the learning model that will be made based on a needs analysis, curriculum analysis and character analaisis learners. At this stage of the selection of this model designed models can develop multiple intelligences. Selection of the model can perform the following steps: a) look for a suitable reference models for early childhood and can develop multiple intelligences; b) determining the learning model that will be developed; c) specified models will be designed back by adjusting the needs analysis, curriculum, character learners, as well as the achievement level standards development 5-6 years old. associated with indicators of multiple intelligences; d) the model has been determined that mind mapping learning model to develop multiple intelligences.

Selection of learning model format to develop multiple intelligences B age group 5-6 years. Selection format for mind mapping learning model using manila paper and provide a wide range of materials to make mind mapping.

Advantages of mind mapping learning model has distinctive from other learning models that can develop eight intelligences or multiple intelligences. This model can be an alternative teacher or educator in learning enthusiasm that can attract children to learn and facilitate the child to understand the subject of learning, because it uses a variety of materials that are used to study the mind map.

Lesson Plan Format Daily (RPPH) adjusted to the curriculum in 2013, there are core competencies (KI), Basic Competency (KD), the focus of achievement indicators nasing their multiple intelligences, learning objectives, teaching methods, media / learning resources, and measures activities. Learning activity consists of 3 parts: opening activities, core activities and closing activity.

The initial design is designing the development of mind mapping learning model to develop multiple intelligences. The initial design is the syntax of mind mapping learning model that consists of 1) Delivering material, 2) Visualizing Mind Mapping, 3) Organizing sisiwa into several groups, 4) Make the first mind mapping section, 5)Make mind mapping the second part, 6) make mind mapping third part, 7) make mind mapping fourth section, 8) make mind mapping fifth section, 9) make mind mapping sixth section, and 10) make mind mapping seventh section. Here is a chart syntax mind mapping learning model.

At this stage of development aimed at the development or testing of products that have been designed. The development phase consists of three activities, namely the assessment of the experts or validation, revision test validation and development of

learning tools that lesson plan (RPPH), media and learning materials. The first assessment of the expert or expert validation conducted by two experts and meet the criteria of very valid. Validation consists of validation and validation RPPH contents. Total score given to the validator 1 to the validation of the content is obtained with an average score of 4:42, while the second validator average score 4:47. The overall results of the two validators terdebut obtained an average score of 4:22, wherebased on the criteria of validity of the contents of mind mapping learning model in studies conducted have valid criteria.

Total score given to the validator 1 to the validation of RPPH obtained with an average score of 45, while the second validator average score of 46. The overall results of the second validator obtained an average score of 4:57, which is based on the criteria of validity in the validation instrument RPPH in studies have valid criteria.

Second, the revision after a validation test of mind mapping learning model. Pursuant expert judgments summarized above, mind mapping learning model may be valid but require some revis andDaily Lesson Plan (RPPH) as valid with no revisions. This revision can be used as a reference in the improvement of mind mapping learning model to develop multiple intelligences. Here is a table learning model improvement.

Third, the development of learning tools that lesson plan (RPPH), media and learning materials. Making the daily lesson plan tailored to the characteristics of the multiple intelligences that have been adapted to the Achievement Level Standards Development (STPPA). Daily Lesson Plan that was developed based on multiple intelligences. Implementation of this research was conducted three meetings with the allocation of time 180 minutes. Learning media is everything that is used to stimulate the learning process to interest children in learning. Learning media in this research that uses visual media to convey information picture book about ants to child and mind mapping example. In the normal child mind mapping media used are:
1) ATK, color pencil, color markers
2) Ingredients mind mapping:
   - manila paper
   - Print pictures of the food ants
   - Print pictures ant
   - Print pictures ant cycle
   - Print pictures ant body parts
   - Print images dwelling ants
   - Dried leaves (to make ant)
   - Folding paper
   - colored folio
   - Scissor
   - Paper glue

Learning materials is a form of teaching materials to learn the child to achieve learning objectives have been determined. Instructional material used in this study is the material about the ants.

In the implementation phase aimed at the application of mind mapping learning model or activity of the product. In the implementation phase is done 3 times the first development tests conducted a meeting on a small scale, the development tests conducted a meeting with a large scale and the third development test conducted one meeting on a large scale. This implementation consists of the application of the pembeljaran and observation sheets teacher's ability to manage the learning model of

mind mapping and observation / assessment keterlaksanaan mind mapping learning model as well as the activities of the child's activity.

The results of the analysis of the ability of teachers to manage mind mapping learning model. These observations were made in early childhood Integrated Al-Furqan Jember three times the outcome of the meeting. Where based recapitulation ability of teachers to manage the mind mapping learning model obtained an average score of 4.6, where berdasrarkan category of level of ability in research have met good interpretation.

Results of an observational analysis / assessment keterlaksanaan mind mapping learning model. These observations were made in early childhood Integrated Al-Furqan Jember three times the outcome of the meeting. Where based on the observation / assessment keterlaksanaan mind mapping learning model obtained an average score of 4:45 where by category level of enforceability in the study have met the high interpretation.

The results of the analysis of the child's activity observation. Observation of the child's activity carried out by the observers that the researcher to determine the activity of children during the learning. Researcher and observer around from one group to another group with observed the children to do an assessment of the indicators that have been planned. Researcher and observer around 2x round to see the progress of each child.

The results of the first meeting on a small scale w ith the interpretation gets 93% very high, a second meeting at a large scale interpretation gained 73.4% with moderate, and the third meeting on a large scale gained 90.7% with very high interpretation.

At the evaluation stage. The evaluation results are used to provide feedback to the user models. Revisions were made in accordance with the results of the evaluation or needs that can not be met by the new model.

CONCLUSION

Based on the results of research and development can be summarized as follows: the development process of mind mapping learning model to develop multiple intelligences group B integrated ECD Al-furqan Kaliwates muddy 2019/2020 school year using ADDIE models developed by Robert Maribe brance consisting of analysis, design, development, implementation and evaluation, and the result of the development of the learning model of mind mapping to develop multiple intelligences consisting linguistic, musical, logical-mathematical, visual-spatial, kinesthetic, interpersonal, intrapersonal, and naturalist: 1) learning by using sheet validation learning model of mind mapping and RPPH considered valid based on assessment results validator, 2) practical aspects by learning to use the instrument teacher's ability to manage the mind mapping learning model meets the good interpretation and observation / assessment keterlaksanaan mind mapping learning model meets the high interpretation, because the teaching activities are observed through observation sheets,and then (3) aspects of the effectiveness of learning is done three times implementations using instruments to interpret the child's activity is very high, medium, and very high on mind mapping learning model.

Suggestions of development that have been implemented include: (1) sheet validation of the contents of mind mapping learning model that needs to be tested in other schools; and (2) of this research have gone through three stages: a preliminary study, research development, and assessment. In which to determine the effectiveness of the

application of mind mapping learning model instrument, then proceed with the development of the product.

REFERENCES

Hidayati, L. (2017). Development of the Pop-up Story Book for Language Skills Matter Wudoo Procedures for Children Group B In kindergarten ISAM Amanah Sumbersari District of Jember. Thesis. Jember: Teacher Education Degree Programs Early Childhood Education University of Jember.

Hobri. (2010). Research Methodology Development: Application On Mathematics Education Research. Jember: Pena Salsabila.

Hobri. (2009). Research Methodology Development (Application On Mathematics Education Research). Jember: Pena Salsabila.

Mutiah, D. (2010). Play in Early Childhood Psychology. Jakarta: Prenada Media Group.

Sham, ND (2015). Application of Mind Mapping Learning Model to Improve Learning Outcomes At Subject Social Sciences Grade IV SDN 54 Parepare. Publication Journal of Education, 5 (3): 185.

Sujiono, YN (2010). Creative play Based Multiple Intelligences. Jakarta: PT index.