



## The Development of Teaching Material Based on Multiple Intelligence Theory of Central Learning Model for Childhood Aged 5-6 Years

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### Abstract

*This study aims to develop teaching materials based on the multiple intelligences theory in central learning models for childhood aged 5-6 years, in the form of teacher manuals and student worksheets. This study uses a development model of ADDIE (Analysis, Design, Development, Implementation, Evaluation) which contains needs analysis and curriculum analysis to test the effectiveness of instructional materials. The results of the validation of teaching material books were analysed using descriptive presentations. Field trials of teaching material books were conducted on 22 students as research subjects. The results of the development of teaching material books based on the multiple intelligences theory of content / material experts scored 82%, from learning media experts scored 95% and from peers obtained a score of 94%. The use of teaching material books in learning gets good responses from principals and teachers based on the interview results stating that the use of teaching materials based on the multiple intelligences theory in the central learning model makes students become creative and active so learning becomes fun. Whereas from the observation results, the scale of students' developmental achievements shows students' development in accordance with the expectations and activeness of the students very well. The results of the research obtained can be concluded that the development of teaching materials in the form of teacher manuals and student worksheets based on the multiple intelligences theory in the centre of learning model aged 5-6 years is valid and suitable for use in classroom learning.*

#### Keywords:

Teaching materials  
Central learning model  
Multiple intelligences  
ADDIE model  
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## 1. Introduction

Early childhood is an individual who is experiencing a very rapid process of growth and development, even said to be a developmental leap. Early childhood has an age range that is very valuable compared to later ages because the development of intelligence is very extraordinary. This age is a unique phase of life, and is in the process of change in the form of growth, development, maturation and refinement, both in the physical and spiritual aspects that last a lifetime, gradually, and continuously (Mulyasa, 2012).

Early childhood education basically covers all the efforts and actions taken by educators and parents in the process of care, care and education in children by creating an aura and environment in which children can explore experiences that provide opportunities for them to know and understand the learning experiences that

are shared from environment, through observing, imitating and experimenting that takes place repeatedly and involves all the potential and intelligence of children (Sujiono, 2009).

For Gardner, humans have always had multiple intelligences. Humans have a variety of intelligences with several combinations of their protrusions. A variety of intelligence possessed by someone is what makes humans always different from each other. Gardner's thinking about multiple intelligences has the greatest impact on education especially in early childhood (Danim, 2010).

Humans have many different types of intelligence, namely: linguistic, musical, spatial, logical-mathematical, physical-kinaesthetic, interpersonal, intrapersonal, and environmental intelligence. Because when children have entered the world of early childhood education, the development of aspects of multiple intelligence can be implicated in indicators in the five fields of development.

One of the learning processes in early childhood education (*Pendidikan Anak Usia Dini/PAUD*) states that "the learning process in PAUD is still tinged with the teaching of reading, writing and counting, they do not fully through play (Latif, 2013). This makes children feel bored and learning is less meaningful and various children's intelligence does not develop. To overcome this, the Ministry of National Education of the Republic of Indonesia since 2004; has adopted the BCCT approach (beyond centre and circle time). BCCT approach or commonly called the centre and circle can be interpreted as a container prepared by the teacher for children's play activities, where in these activities the teacher can stream learning material that had previously been planned and arranged (Asmani, 2009). So that it can be said that learning early childhood is playing.

The central model is a learning approach that in the learning process is carried out in a circle times and playing central. Circles are times when educators sit with children in a circular position to provide a platform for children to do before and after playing (Mulyasa, 2012).

A good approach is not uncommon to experience obstacles that occur in the implementation and application. This certainly becomes incompatible with the goals of Early Childhood Education itself. And to develop all potential students it is necessary to develop children's multiple intelligences, so that the management of learning or management from the beyond central and circle time approaches, which includes planning, implementation and evaluation can run well. In addition, with the management of learning it can facilitate teachers in managing, organizing and organizing various activities and play materials to produce the best programs and provide a sensitive learning environment, friendly, provide opportunities for children, and support positive development in children.

Learning central models in Kindergarten need to be supported by providing teaching materials as one of the important components in learning objectives that are in accordance with the criteria for child development. At present the teaching materials have not fulfilled both the quantity and quality aspects. So that this problem can be resolved "How to realize a teaching material based on the multiple intelligences theory that is feasible to use in the central learning model aged 5-6 years?". This development product is expected to be a companion of teaching materials that have been owned by the teacher.

Teaching materials are all forms of material used to help teachers or instructors in carrying out the learning process in the classroom (Prastowo, 2015). Teaching materials can be printed materials such as handouts, books, modules, student worksheets, brochures, leaflets, wallcharts, photographs or drawings, and models or models. There is also a form of listening teaching material, listening material (audio-visual), interactive teaching materials (interactive teaching materials).

The functions of teaching materials include: (1) Learners can learn without having to have other educators or friends of students (2) Students can learn anytime and anywhere they want (3) Students can learn in the order they choose themselves (4) Learners can learn according to their respective speed (5) Helping potential students to become independent students (7) As a guide for students who will direct all their activities in the learning process and constitute competent substances that should be learned or mastered.

In the center learning model there are several types of centers including: (1) *Sentra Imtaq* (Faith) which contains various activities to instill religious values, faith and devotion to the Almighty One. (2) Natural material centers which aim to provide experience to children to explore with various materials. (3) Arts and creativity centers to provide opportunities for children to develop various skills, especially hand skills using various materials and tools. (4) Central role playing consisting of macro playing centers and micro play centers. The macro play center fully supports language development and social interaction. Playing macro is role playing as if the child is playing according to the real thing. (5) Beam centers to help develop children in construction skills. (6) Preparatory centers that focus on providing opportunities for children to develop mathematical abilities, pre-writing and pre-reading. (7) music and body centers are used so that students get pleasure, aesthetic values through the activities of playing music, singing, and moving in accordance with the rhythm of the music. Multiple intelligences are an assessment that looks descriptively as where individuals use their intelligence to solve problems and produce something (Bambang, 2010). According to Howard Gardner identify 9 kinds of human intelligence in understanding the real world. This opinion was then followed by other figures (Asmanis, 2015) namely: (1) linguistic intelligence is a person's ability to use language words (Samsudin, 2008). (2) Mathematical-logical intelligence Is the ability to calculate, qualify, formulate propositions, hypotheses, and solve complex mathematical calculations. (3) Visual-spatial intelligence It is a person's ability to see visually / space. This intelligence includes sensitivity to colors, lines, shapes, spaces and

relationships between these elements. (4) Kinesthetic intelligence is the ability to carry out movements, skills, and physical skills such as sports. (5) musical intelligence is the ability of individuals to handle or recognize musical forms by perceiving, changing, expressing. (6) Interpersonal intelligence is the ability to perceive and distinguish the mood, purpose, motivation and feelings of others. (7) intrapersonal intelligence is the ability to understand emotional life, distinguish people's emotions, knowledge of strengths and weaknesses, skills to form the right perceptions of people, use them in planning, planning and directing other lives. (8) Naturalist Intelligence It is the ability to recognize, distinguish, express and categorize what is found in nature and its environment. (9) Existential intelligence is often found in philosophers. They are able to realize and appreciate properly their existence in this world and what their purpose in life is.

## 2. Method

This research is research and development which is modified from Sugiyono (2016) which produces products to be validated by the experts concerned. To be able to produce certain products used research that is needs analysis and to test the effectiveness of these products. Development research is a process or steps for developing a new product or perfecting an existing product, which can be justified (Syadid, 2016). The research and development carried out was to produce products in the form of teaching materials in the form of teacher manuals and central model student worksheets based on the multiple intelligences theory in kindergartens aged 5-6 years. The research design and development of teaching materials used refers to the research design and development modification of the ADDIE development model (Welly, 2007) which consists of 5 steps: (1) Analysis (2) Design (3) Development (4) Implementation (5) Evaluation To assess the feasibility of teaching material products, validation was carried out by 1 content / material expert, 1 learning design expert in the form of a questionnaire sheet or questionnaire which was analyzed using quantitative descriptive. A questionnaire is a number of written questions that are used to obtain information from the respondent in the sense of a report about his personality or things he knows (Kuntoro, 2002). In addition, a questionnaire was given to 1 teacher to provide an assessment of the feasibility of the center model based on experience and learning needs in the classroom. Besides that, it can also be used as a basis to see the suitability of the center model with the character and level of achievement of early childhood development. Data on the feasibility of this teaching material product obtained from the validator's assessment questionnaire using assessment criteria Table 1. After the teaching material book gets validation from the development and material design experts, and the teacher/colleague, the product will soon be tested to students as many as 22 students at Hidayatul Ummah Jotosanur Kindergarten. The trial was conducted to measure the activity of students in participating in the center model learning through observations on the assessment of the scale of achievement of daily development.

**Table-1. Validity Level and Product Revision Criteria.**

Percentage (%)	Validation Criteria
76-100	Valid
56-75	Fair
40-55	Less Valid
0-39	Not Valid

Source: Arikunto (2006).

## 3. Results and Discussion

The model of developing instructional materials in the form of teacher manuals and student worksheets based on the multiple intelligences theory in the central learning model in this study was using the ADDIE development model (Welly, 2007). The stages of development can be seen in detail as follows:

### 3.1. Analysis Stage

Needs analysis is done by digging and collecting important information related to the problems that occur in the center model learning in children aged 5-6 years in *Hidayatul Ummah Jotosanur* Kindergarten. While curriculum analysis is carried out by analyzing competency standards and basic competencies and competency achievement indicators by referring to the 2013 curriculum.

### 3.2. Design Stage

In the design stage the Researcher looks for and collects relevant reference books as a reference in developing teaching material books. The book used as a reference is the Ministry of Education and Culture, 2015. Basic Framework and Structure of 2013 Curriculum Early Childhood Education, Jakarta: PAUD Directorate and PAUD Development Directorate. In addition to reference books, researchers also collected pictures relating to the material to be used in teaching material books. The researcher obtained the images from the internet. After that a teaching material was prepared in the form of a teacher's guidebook which contained the design of the second semester program that refers to core competencies and basic competencies, weekly learning implementation plans, daily learning implementation plans and learning guides at each center

and evaluation in the form of daily development achievement scales. Furthermore, the developer designed teaching materials in the form of student worksheets based on the multiple intelligences theory in the central learning model that pays attention to the suitability of early childhood development rates at the age of 5-6 years. The designed worksheets contain competencies achieved, indicators, types of centers, types intelligence, work instructions and in the form of pictures according to sub-themes.

### 3.3. Development Stage

The development of teaching materials in the teacher manual developed was about the weekly implementation plan that refers to components such as: group identity, semester, theme and sub-theme, material in each center based on the theory of multiple intelligences and basic competencies achieved. While the plan for implementing daily learning refers to components such as: semester, day/date, group, theme/sub, center, learning content/material, learning activities, assessment indicators and tools and materials used in the center learning model. Furthermore, the development of student worksheets is carried out in accordance with the planned implementation of daily learning that has been prepared. The student worksheets developed have components that make it easier for students to understand the material being taught.

The design of teaching materials in the form of teacher manuals and student worksheets was then assessed by content experts and learning design experts. Furthermore, the results of the validation from the experts are used as a reference to revise the teaching materials developed. The results of revisions from content/material experts and learning design experts were then piloted into the field.

### 3.4. Implementation Stage

At the implementation stage is done to measure the learning outcomes of students aged 5-6 years. The trial of the developed teaching material book was carried out in the 5-6 years of age group in the *Tikung Lamongan Hidayatul Ummah Jotosanur* Kindergarten with 22 students.

### 3.5. Evaluation Stage

The last stage is evaluation of the data obtained consisting of two types, namely data analysis results from validation and analysis of trial data of teaching materials products. Analysis of the validation data consists of a validation sheet analysis. While the data analysis of the trial of teaching materials consists of the results of observations assessment of students using a daily development performance scale to measure the level of student activity in the learning process. The feasibility of teaching materials in the form of teacher manuals and student worksheets is validated by 1 content / material expert lecturer, 1 learning design expert lecturer and 1 teacher / colleague as a user so as to provide an assessment of the feasibility of central model teaching materials based on experience and learning needs in class. The results obtained from the calculation of validator assessment criteria are presented in [Table 2](#) below:

**Table-2.** Evaluation Results of validator teaching materials products.

No.	Validator	Percentage	Criteria
1.	Content/material experts	82 %	Valid
2.	Learning design experts	95 %	Valid
3.	Colleagues	94 %	Valid

Source: Arikunto (2006).

Based on the above data, the total score of the presentation of teaching material validation based on the multiple intelligences theory in the center model learning age 5-6 years is produced to be valid and feasible to be tested. At the validation stage, input and suggestions from expert lecturers were also obtained. This is done to correct errors in teaching materials based on the multiple intelligences theory in central learning models developed in early childhood aged 5-6 years. Improvement of teaching materials in the form of teacher manuals and student worksheets is presented in [Table 3](#).

**Table-3.** Input and revision of teaching materials from expert lecturers.

No.	Suggestions	Revision
1.	Separation of teaching material books	Separate teaching material books into teacher manuals and student worksheets
2.	Intelligence that is raised in teaching material books	Add various intelligences in the weekly learning implementation plan, daily implementation plan, on the assessment sheet and in the student worksheet.
3.	Writing languages and letters in student worksheets	Replacing the letters is bigger and more simple
4.	Cover format on student worksheets	Change the cover of student worksheets to A4

The revised worksheets were then tested on 22 students to assess the effectiveness of student worksheets applied in the center model learning. Student learning outcomes data are presented in Table 4.

Table-4. Recapitulation of student learning outcomes.

No.	Percentage	Number of Students	Criteria
1.	80-100 %	19 students	Excellent
2.	66-79 %	3 students	Good
3.	56-65 %	-	Fair
4.	40-45 %	-	Dissatisfactory
5.	≤ 39	-	Poor

Source: Result from data analysis of SPSS 22.

The results of the analysis show that student learning outcomes have increased in large-scale trials as many as 19 students with very good criteria and 3 students with good criteria. Kadir and Wulandari (2011) research states that the implementation of multiple intelligences in learning can improve student learning activities and outcomes. The teacher's response to the use of student worksheets based on the multiple intelligences theory in the central learning model states that students become more creative and the material taught is easily understood by students in addition students have an independent attitude and cooperation with friends.

From the research of Ernawati, Ibrahim, and Afif (2017) stated that learning using LKS based on multiple intelligences that has been developed effectively to be used in the learning process. This can be seen from the response given by students that learning using LKS based on multiple intelligences makes students more motivated and active in the learning process.

#### 4. Conclusion

Based on the data analysis of the validation results from the content expert/ presentation material the score was 84%, the learning design expert was 95% of colleagues at 94%. And also from the results of student learning through assessment techniques, namely the achievement scale of daily development students shows the development of students in accordance with the expectations and activeness of students is very good in using teaching materials based on the multiple intelligences theory in center model learning. It can be concluded that teaching material books based on the multiple intelligences theory are valid and feasible to be used in the center learning model at the age of 5-6 years.

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