Interactive Media Design Based on Inquiry for Early Age Children

Abna Hidayati, Alwen Bentri
Educational Technology Department, Faculty of Education
Universitas Negeri Padang
abnahidayati@fip.unp.ac.id

Abstract-*Learning in early childhood requires a variety of media, one of which is the existence of interactive media. Phenomenon in the field shows a lot of interactive media that are not in accordance with the needs of early childhood. The purpose of this study was to find inquiry-based interactive media designs for early childhood. The method in the research was the development of Borg & Gall. Validation was carried out by 2 validators consisting of material experts, media experts from lecturer of curriculum and educational technology, faculty of education Universitas Negeri Padang. The object of the research is 10 early childhood teachers. The instruments used in this study are documentation, rating formats and questionnaires to see the convenience for subjects trying to use interactive media products. At the design stage a prototype of the product will be developed. The results showed that in the development of interactive media for early childhood, starting from the stage of needs analysis involving early childhood and teachers in early childhood and stated that interactive media is needed in early childhood because it serves to motivate children in learning. Furthermore, at the stage of interactive media learning design begins with an explanation of the learning objectives, the function keys are then given pictures and videos that support learning. The game designed is a child designed to put items in their place located in the living room, study room and kitchen. This activity is to foster an independent and meticulous character. Furthermore, to grow the character of love in the environment, children are invited to maintain the plants around the house.*

Keywords: *Training, Teaching Materials, Information Technology, Teachers,*

I. INTRODUCTION

The learning process is essentially an accumulation of the interaction of knowledge manifested in the form of attitudes and skills. In connection with these conditions, it is necessary to develop a number of learning media that support students' thinking skills and contain learning motivation. Motivation is important because it strongly encourages children to improve the process in order to achieve the desired results. Motivation becomes an important part of the learning process, meaning that without the motivation to learn, of course the learning process will not take place optimally. In connection with this, it is necessary to make learning media as one form of information and also the delivery media of messages and information in learning. As is known that information in the learning process becomes one important thing to design. (Pratama, Arief, & Hidayati, 2018) This information is in the form of teaching materials, learning media. In the field of educational technology studies, making teaching materials becomes one important thing. In the process of designing teaching materials, learning media and other supporters in need through several stages. The step of developing learning media is valued from the planning process. Allesi and Trolip (2001: 410) explain that the process of developing learning media includes planning, design, development, and implementation. At the planning stage includes 1) determine the scope of the material, 2) identify the characteristics of students, 3) formulate goals and costs, 4) produce planning documents, 5) produce guidelines for style, 6) determine and collect sources, 7) brainstorming or expert consultation , 8) defining the appearance. Research on the development of interactive media based inquiry in early childhood is an interactive media developed for character learning in early childhood, needing to be specifically designed to make the learning process optimal. The development of interactive media in early childhood needs to be done, because early childhood must indeed be introduced to information and communication technology.

II. METHOD

The method used in this study is research and development using the ADDIE model. This model consists of five steps namely, 1) Analysis, 2) Design, 3) Development, 4) Implementation, and 5) Evaluation. At this stage the analysis and development phase is in place. Respondents in this study were early childhood education teachers, lecturers, and education practitioners. The instruments in the study are observation guidelines and interview guidelines. The research was processed using qualitative and quantitative data.

III. RESULTS AND DISCUSSION

Character learning is something unique, because the target of open learning is only needed to master learning material, but it is a complex process that will manifest in the form of interaction and attitudes of

students. In the design of interactive media used in character learning needs to be done starting from the initial design steps (Hidayati, 2018). Design means the initial design that must be prepared in designing a learning media in this case is interactive media.

Based on what was suggested by Richey and Klein (2007), it was explained that the stages of learning product design are summarized in the following items:

Table 1. Product Design Stages

Item	Component
Design and Product Development Stages	1. The connection between products designed with an increase in kearner achievement 2. The relation between the product and the learners behavior or attitude 3. The link between product design and the use of the product produced 4. Evaluate the interactive effects of products with evaluation standards..

(Adapted from the book Design and Development Research, Richey and Klein (2007))

From the description above, based on the results of interviews with a number of experts, the following results were obtained:

1. Linkages between interactive media and increased motivation and learning abilities.

Inquiry-based interactive media development designed to be able to increase early childhood learning motivation, because of attractive media design. Children will be interested in interactive media equipped with interactive games that are designed close to the needs of children. Interactive media produced for early childhood is one of the needs of children in the digital age. This allows children to be more challenged in learning.

2. Product Linkages with the formation of learner attitudes.

Inquiry-based product development, designed according to real-world concepts, will enable children's attitudes and character to be well formed. In the concept, games that are designed stimulate children to think critically. For example, children are faced with natural experiences when they enter a house. In this section the child will be strived for how children think critically about what activities they should do when they enter the house. What to do in the room and other rooms at home.

3. Linkages between products and benefits of the products produced

Products that are developed are useful to provide students with the ability to develop the internet capabilities of the thing. In the era of industrial revolution 4.0 the ability to use the internet and information technology needs to be developed early.

4. Linkages between products and the effects of student interactions.

The development of inquiry-based interactive media for early childhood needs to be developed because in interactive media it can be designed to interact with early childhood based on activities provided in interactive media. In this context, interactions are carried out through game activities.

Based on the above description concretely for the design of stages developed as follows:

Table 2. Design of stages developed

Item	Component
Description of Product Produced and a Number of Existing Tools	- Design tool - Picture Design - Video Design
Design Usage	- Individual - Peer to peer - Teacher Assistance
Context	- Character Values (independent, creative, discipline, critical and teamwork) - Material

Inquiry-based interactive media product design in the process of early childhood learning

Starting at the design stage of interactive media learning starting from the explanation of the learning objectives, the function keys are then given pictures and videos that support learning. The game designed is a child designed to put items in their place located in the living room, study room and kitchen. This activity is

to foster an independent and meticulous character. Furthermore, to grow the character of love in the environment, children are invited to maintain the plants around the house. Interactive media development begins with attractive media design by including a number of relevant animations and videos.

IV.   DISCUSSION

The development of interactive media in early childhood needs to be adapted to its characteristics with early childhood development. The development of interactive media in early childhood enables the development of a relevant learning environment and enables active students to think highly. (Prasetya & Hirashima, n.d.).

The use of interactive media in learning is important because the process of transformation of knowledge can have an influence on a person's behavior because it contains attention, retention, production and motivation which will ultimately give a person the effect of inhibition on the behavior (Badura, 1985 in Gledler (2011) Development of interactive media in early childhood enables learning to be effective, fast and targeted (More, 2013) .In the context of games designed in early childhood learning various game models are developed. There are several standard types for game development as the following: 1) action game, which is a game that specifically gives the opportunity for students to play according to their goals, 2) gambling games, namely games designed to be able to complete a number of tests on the virtual world, 3) Fighting games that are involving characters controlled by other characters through computers or other characters, 5) the play of human roles assumes the characteristics of several people, 6) simulations, 7) sports games (Begona, 2007). In this section the simulation is developed, namely early childhood is designed to create a situation of activity in the room, starting from the living room, family room and bedroom to the kitchen. This is in line with the development of research that has been done, namely the design of the learning environment in early childhood. The learning environment can be designed according to the characteristics of early childhood. (Hidayati, Amilia, & Amsal, 2018).

V.   CONCLUSIONS

The development of inquiry-based interactive media for early childhood is carried out through two stages, namely the design stages and stages of development. In the design phase analyzed 1) the relationship between the product and the increase in learner achievement, 2) the relationship between the product with the behavior or attitude of the learner, 3) the relationship between the design and the product produced, 4) the link between the product and the interactive media design.

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