

An Innovation in Early Childhood Learning Through Instructional Games Model

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ABSTRACT : *Many people argue that interactive multimedia has the potential to create high quality learning environment which actively learner that it improve ubtensive learning. Instead of promoting the sole goal of applying theories and concepts of instructional games for improving the professionalism of early childhood teachers, many teachers still obtain insufficient data and use conventional media. The learning process is still monotonous and focused only teachers. In general, the media used for the learning process has not varied yet. Other sources say that many early childhood education teachers are still with the background of elementary school, middle school, high school, diploma I, and diploma II. Thus, the educational background that does not fit the criteria for early childhood teachers has caused the ineffectiveness of the learning process. The purpose of this study was to determine the effectiveness of instructional games learning model for professional development of early childhood teachers in Medan, North Sumatera Province, Indonesia. With a view condition, the author assumes that interactive and fun media are needed so as to make children interested in the learning process. On the basis of these ideas, author initiates an interactive multimedia learning method in the form of instructional games. The implication of this study is that there will be discussed strategies of competence development for « all teachers » especially in Medan and in the domain of educational technology*

KEYWORDS : *education, early childhood, instructional games, interactive multimedia, teachers*

I. INTRODUCTION

The role of education is indispensable in one's life. Education is an effort made to equip children with knowledge, skills, and attitudes needed for their future. Education starts from early childhood. Their intelligence grows rapidly at this time. A new born child initially received education from his/her first educators, i.e. his/her parents, in family environment (informal), and then from those at formal or informal institutions of Early Childhood Education. Teachers at early childhood institutions play their roles as the second teachers after the children's parents. They are responsible for helping the children's intelligence develop through learning. This early childhood education is considered important because it helps the children's intelligence develop optimally to be a basic education prior to having further education. Gardner quoted from Fadillah, M. and Khorida, L.M. (2013, p.48) said that:

Early childhood education plays a very important role because human brain development grows rapidly and leaps to reach 80%. Once born into the world, a human baby has reached much as 20% of brain development. When it reaches the age of 4 years, it develops 50%. It becomes 80% at the age of 8 years. It keeps growing until the age of 18 years.

Therefore, it is clear that as much as 80% of the human brain develops from the age of birth up to that of 8 years. Thus, human intelligence develops when human age gets older. The purpose of early childhood education as stipulated the Law of the Republic of Indonesia Number. 20/2003 regarding National Education System, Chapter 1 Article 1, and point 14 is that:

Early childhood education is an effort aimed at the development of children from the time of birth to the age of six years. It is carried out through the provision of educational stimulation so as to assist the growth and development of the children physically and mentally in order to have their readiness to take further education.

Fadillah and Khorida (2013, p.50) say that growth is attributed on child's increasing physical size, while development to the child's psychological and psychiatric development. The purpose of early childhood education can be realized by learning activities in accordance with child development stages, for example, by giving them fun games that may attract their attention. This is based on the research of many experts who found that children likely construct their knowledge when they are playing and according to the way they think. As quoted from Rousseou, JJ in Essa, LE (2002, p.114), it is said that:

Children's mode of thinking and learning is different from that of adults and considered good education to be based on the stage of the development of the child, not on adult-imposed

criteria. A child centered, uncorrupted education will, eventually, result in adult who are moral and interested in this common good of society.

Accordingly, here we may know that the way children think is different from that of adults. As for children, it may give implications for the way they learn and a good education is should be based on the stages the children development. Each child has different interests in what is studied, and the task of educators is to help children develop their intelligence. The success in achieving the goal of early childhood learning can be promoted and supported by a variety of instructional media. The effective use of instructional media is determined by the media which is in conformity with the materials taught. In order to understand the role of media in the process of having a learning experience for children, Edgar Dale describes it in a cone which is then called cone of experience, as follows (Dale, E in Rusman, 2012, p.165):

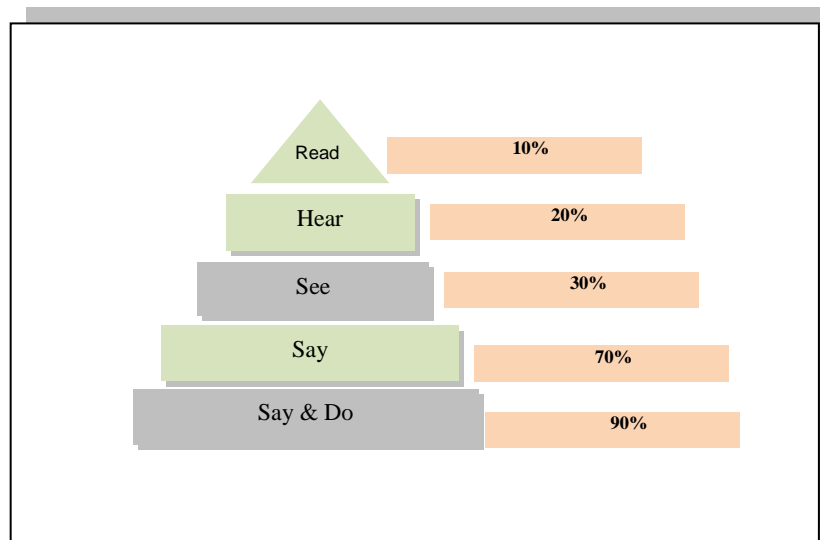


Fig.1. Edgar Dale's Cone of Experience

The figure above shows that as many as 10% of people are able to remember what is seen, as many as 20% are able to recall what is heard, about 30% are able to recall what is seen, approximately 50% are able to recall what is seen and heard, about 70 % are able to remember what is said and written, and about 90% are able to recall what they are doing. The range of the experiencing level is from direct experience to the experience of communication symbols and from concrete objects to abstract objects. The cone above is useful so as to provide specific implications for the selection of instructional methods and materials. The proposed cone experience suggests that the learning experiences gained by students can be through activity process, learning experience, observing process, listening process through a particular medium, and listening process through language. The more concretely the students study the teaching materials, for example, through direct experience, the more experience they can gain. Conversely, the more abstractly the students gain their experiences, for example, relying only on verbal language, the less experience they can obtain. Edgar Dale's opinion about cone of experience is an initial attempt to provide reason or basis of the relationship between learning theories and audio-visual communication. One form of audio-visual communications is the use of interactive multimedia in early childhood learning. Thus, the importance of the role of interactive multimedia in learning process is indispensable because approximately 90 % of children, through the world they have fun with, likely engage interactively in learning.

Based on observations and interviews carried out at an early childhood education institution in Medan, North Sumatra Province, Indonesia in 2013, it was found that the medium used was not varied, some even are still using LKS (Lembar Kerja Siswa/student worksheet). This is in contrast with the research results of many experts of early childhood education claiming that children learn by playing as expressed by the Samuelsson and Calsson (2008, p.627) who said that 'many studies claim that children today create knowledge when they play'. Although based present early childhood institutions have had adequate media, and some have been using media that display stories (televisions or VCDs), children still get bored easily. It is supposedly so because they think that they fail to be parts of the displayed stories (ininteractive). Playing is a demand and need for early childhood age. So that the learning activities must be carried out through various games in a fun and stimulating way. Thus children are actively involved. The method used in this study is the observation and study of documentation. On the other hand, we can see, based on the study documentation processed and presented in the form of pie chart, that some data shows that qualified early childhood teachers in Medan are still very few.

Based on the results of the study documentation, the following is the educational qualification data in pie chart form obtained from the Department of Education of Medan in 2012:

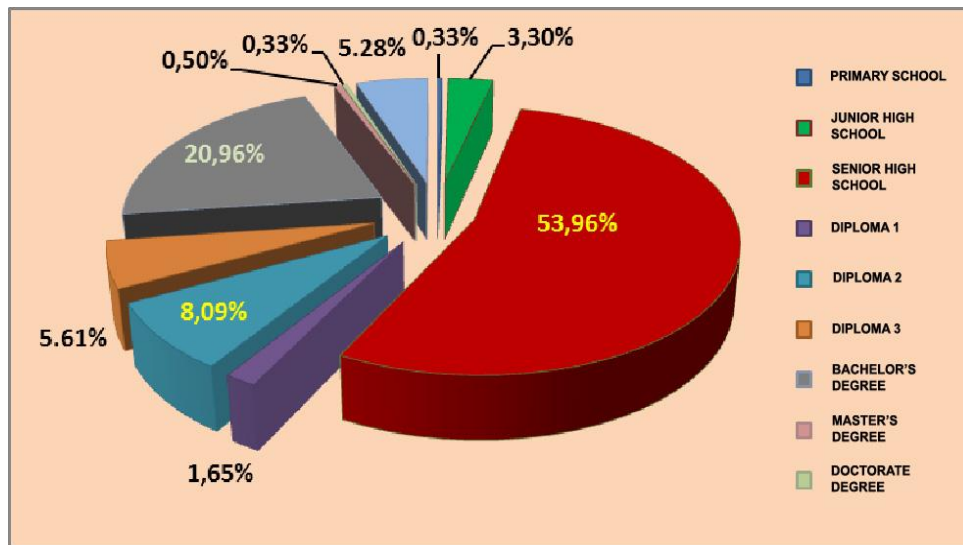


Fig.2. Qualifications of Early Childhood Education Teachers in Medan

In the picture, we can see clearly that the early childhood teachers are dominated by High School graduates, approximately 53.96% of the 606 early childhood teachers. In fact, there several teachers graduated from elementary school, junior high school, Diploma I, Diploma II, and Diploma III. Although some are of undergraduate educational qualifications, they are not very few. This situation is certainly not beneficial for early childhood, while the educational process and the outcomes need to be justified. The educational process also needs accountability in its implementation. The educational productivity is impossibility obtained if the process and the outcome of the education are blocked by a bad system of administration. General tendency of the media used is still not varied. The teachers' educational background has not met the expected criteria. These indicate that the early childhood teachers' knowledge and skills (professionalism) in using the media is still inadequate. With a view to this situation, author assumes that it is necessary to find certain media that can involve children in a fun and interactive activity so as to attract their curiosity and interest. The author initiates to develop interactive multimedia in a model of instructional games that can be used to equip the early childhood learning with interesting games. The use of interactive multimedia in the form of instructional games has never been implemented in Indonesia, especially in Medan, North Sumatera Province. It is so because computers, as tools used for this model, is still generally used for administrative interests. The purpose of this study was to determine the effectiveness of instructional games learning model for professional development of early childhood teachers in Medan, Indonesia.

II. INTERACTIVE MULTIMEDIA AND ITS APPLICATION IN EARLY CHILDHOOD LEARNING

2.1. Definition of Interactive Multimedia

In terms of syllable, the word 'multimedia' is composed of two syllables, i.e. *multi* and *media*. *Multi* means many and *media* means medium, a place on which to put information. Najjar, J. L. (1996, p.1) said that "Multimedia is the use of text, graphics, animation, pictures, video, and sound to present information". This means that multimedia is the use of text, graphics, animation, images, videos, and sounds to convey messages or information. Teaching activities using presentation software is one simple example of the use of multimedia. Another definition of *multimedia* according to Robin and Linda in Darmawan D., (2012, p. 47) is a tool that can create a dynamic and interactive presentation that combines text, sound, images, animation and videos delivered by computers or digitally manipulated. This can be delivered and/or controlled interactively. Multimedia are necessary for an education in various ways, developing cross skills and competencies, efficient communication, Solving problems, Critical thinking, Collaboration, Using technologies (Silpa & Sunita, 2013, p.82). Developing attitudes, intellectual curiosity, Responsibility. Student satisfaction and motivation is higher in courses that use multimedia materials. To raise interest level, students appreciate (and often expect) a variety of media. The definition above confirms that a multimedia system can be described as shown below.

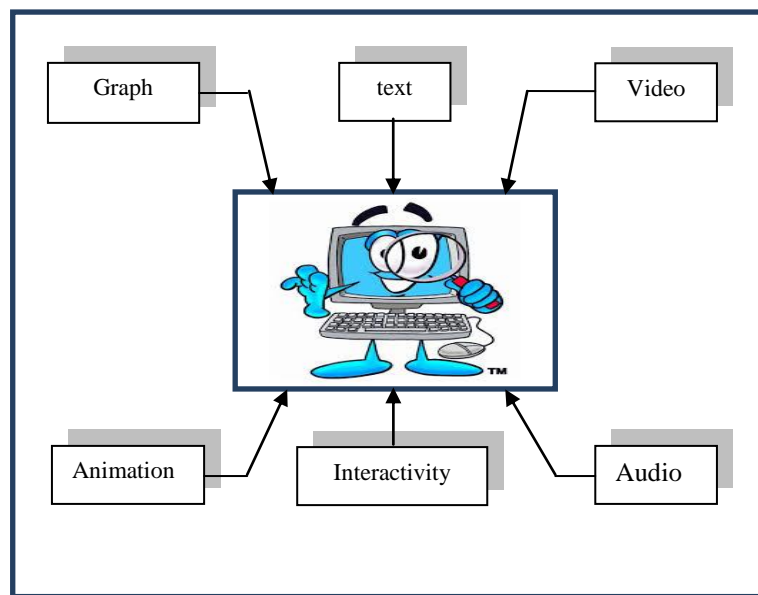


Fig.3. Description of Interactive Multimedia

Basically, multimedia combines various levels of learning into an educational tool that allows doing the presentation of curriculum diversity. Multimedia today is a combination of text, graphic art, sound, animation, and video elements. The display of a multimedia project is meant to control 'what', 'when' and 'how' elements are delivered and served into interactive multimedia. It is because multimedia can be defined as an integration of multiple media elements into a single synergistic and symbiotic unit that gives more benefits to the final user of one media element. The use of multimedia enables the learning process through exploration, discovery, and experience. Multimedia can support multiple representation of the same piece of information in variety of formats.

It has several implications for learning. By interactive multimedia, teachers unusually refer to the use of multimedia and ICT (Information and Communication Technology) equipments to offer an effective dialog between the instructor and the students in comparison with traditional methods of teaching which may lack such interactivity (Ke, 2008). Especially ICT, the definition denotes that ICT is related not only to computers but also to other digital devices such as mobile phones and digital televisions (Harendita, 2013, p.42). With multimedia, the learning process can be more goal-oriented, more participatory, and flexible in space and time. It is not affected by distance, adapted to individual learning styles. In such a way, collaboration increases between teachers and students. Multimedia makes the learning process go in a fun and friendly way and fearless of inability or failure.

2.2. Development Procedures of Interactive Multimedia

A good multimedia development cannot be made spontaneously, but necessary steps need to be taken by considering the aspects of quality, practicality, principles, and rules in interactive multimedia production. According to Riyana, C. (2009 p. 248), computer-based development can be reached by steps, i.e. *First*, by making Media Program Outline (GBPM); *Second*, by making flowchart; *Third*, by creating storyboard; *Fourth*, by gathering materials needed for completing the interactive multimedia presentation. The materials required include video, sound recording, animation, and images; *Fifth*, programming phase, i.e. assembling all materials in accordance with the demands of the script; *Sixth*, finishing. In this activity, legibility test program in accordance with the expected audio targets is reviewed. The end of finishing activity is packaging. Here the program is packaged in a CD with cover and label. The following image is the workflow procedure of an interactive multimedia development.

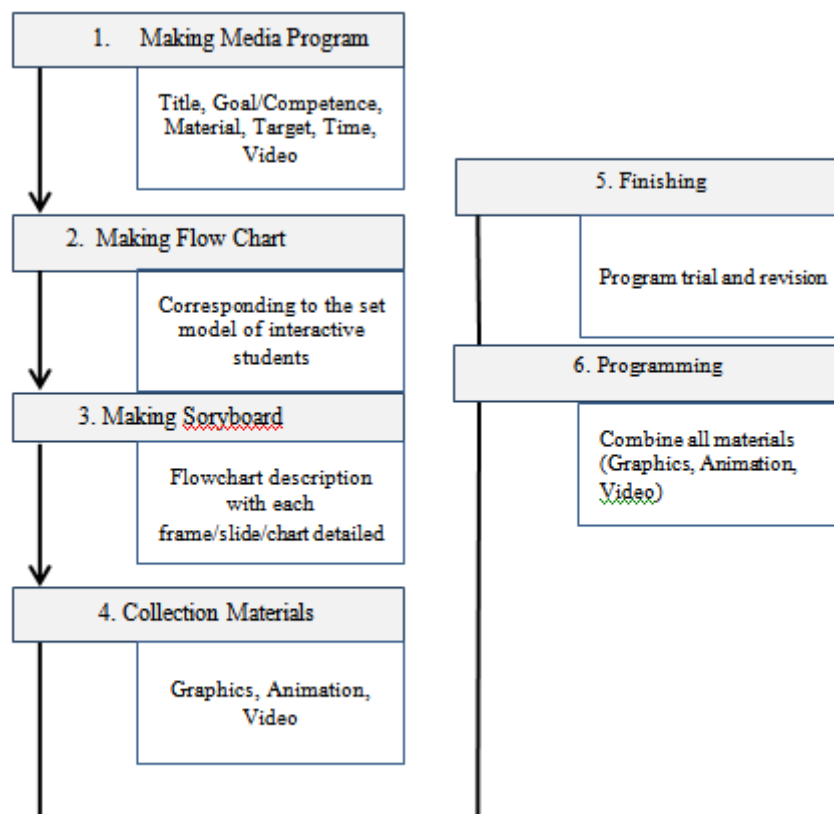


Fig. 4. Chart Development Procedures of Interactive Multimedia (Riyana, C. 2009 p. 248).

III. CONCEPT OF INSTRUCTIONAL GAMES

According to Gagne in Sanjaya, W. (2008, p.66) one's learning can be influenced by two factors, i.e. internal factors and external factors. Internal factors are those related to the conditions that are brought or originating from students themselves such as basic skills, one's specific learning style, interests, talents as well as the readiness of each individual when doing the learning. External factors are those that come from outside the individual. This is related to the creation of good condition or environment so that children want to learn. Utilization of interactive multimedia learning is related to external factors, i.e. environmental settings and conditions that allow students to learn. Children tend to mime what is seen, heard, felt and experienced. Thus, their characters will be formed in accordance with teacher's way of parenting. It can be concluded that the learning model applied by both parents and educators will determine the success of learning. In short, teachers must be able to create interesting learning because children learn by playing. So each child has different character, however, something in common possessed by all children is their need of playing considered as their means to recognize the world. As for children, not only does playing stimulate their skills acquisition, it stimulates their cognitive growth too. Playing provides many opportunities for children to practice, to stretch thinking skills, to work through emotions, to socialize, and to be creative. One form of games offered in this study is a model of instructional games.

Instructional game is a model of interactive multimedia in a learning process. It makes use of computing devices. Learning materials, made in packages by researchers in this study, is a model of instructional games. Children learn certain materials through instructional game play that is packed and combined with some other media. In application, educators are trained how to use the instructional games (developed by researcher) with the help of multimedia experts. Ways to have them are also given in several ways: *first*, ordering; *second*, buying; and *third*, if possible, teachers can produce and design their own products according to the design developed. The use of interactive multimedia can be carried out through systematic measures as tool aids for educators in conveying learning messages. Thus, the use of instructional games in learning process is essentially the educators' efforts in creating interesting and fun learning for young children by using interactive multimedia tools (multimedia computer).

Furthermore, the conceptual model is developed for and tested on the early childhood educators and

finally evaluation process to determine the outcome of the effectiveness of training is carried out. Seeing that teacher training program is important and teachers are role models, teachers must have strong personality, dignified, wise, and prudent. Teachers make decisions to be used as a reference to take certain action. It is carried out by taking into account, at the right time, the existing circumstances. Teachers should be capable of fostering good relations with all parties, especially with students, familiar, attentive, sensitive to the children's behavior in interaction, respecting, communicating, giving instructions with simple sentences (not overlapping), having high confidence, having the ability to involve children in each activity, open-minded to learn, able to think critically to solve problems, warm, soothing, honest, and patient especially when they make mistakes. Thus, it can be concluded that instructional games is one model of interactive multimedia, a lesson material packed into game model of instructional games. Thus, the learning process becomes interesting and fun so as to achieve objectives including methods, techniques, and evaluation techniques to measure or determine the successful achievement goals. In connection with the examples of interactive multimedia, instructional game will be used.

Rusman (2012, p.313) said that instructional game is "a method in computer-based learning". The purpose of the game is to provide instructional experiences that facilitate students with a form of learning process with educational games. Instructional games do not need to imitate reality but the characters in the games are purposely created so as to give exciting challenges to students. The instructional games are easily recognized through the patterns of the learning games that are designed in such a way so that the learning is more challenging and fun. All games have basic components as a motivation to put forward competitive nature. Competitions in the games are created so as to achieve expected learning objectives.

3.1. Principles of Instructional Games

According to Asep Herry in Riyana, C (2009, p.163) principles in games are: 'aims, rules, competitions, challenges, imagination, safety, and entertainment'. This is described as follows: *First*, the game model should have clear objectives from the beginning until the end of the play. The goals of the games should be set explicitly so that students know the purpose of the game. The purpose of the game should not be solely for amusement. The learning purpose should be based on the available curriculum. The achievement indicator of the goal can be seen from the success of the students to pass all the challenges in these games and from the scores they can obtain as well. *Second*, there are also the dos and the don'ts in the games. The rules are made reversible so as to avoid possibly arising weaknesses done by the users. This is purposely set to make the games more interesting. *Third*, the competition programs must provide facilities that enable students to compete with others to be the best, such as; attacking enemies, beating yourself, beating the settable time. Students will be happy if they have managed to be a winner and that will make the games become more interesting. *Fourth*, game challenges should be set from-easy-to-difficult level of play. *Fifth*, game imagination should be based on the development of imagination so as to give motivation to the players. *Sixth*, the games should provide a safe way out in facing real dangers such as in a war game. *Seventh*, the games should be entertaining and could be used to motivate learning. Thus, games pass through several stages of creation and one of which can be done by the steps as mentioned above.

3.2. Components of Instructional Games

According to Riyana C (2009, p.167), in general model of games is divided in three parts: *First*, Introduction: body of instructional games, and conclusion. Introduction describes opening of the program, explanatory playing stages in the game, game rules, and target and goal. The opening is important for students to understand the meaning of the game and to technically operate the game. The core of instructional games is about learning scenario, flow of the game, and game characters. *Second*, Mode of interaction, is dealing with the actions executed by players in a game which may involve certain ways and means, for example, uses of mouse, keyboard, touch screen, joystick and others things. *Third*, As for *conclusion*, several things must be considered, i.e. (1) Notifying the winner by showing scores obtained and written explicitly. (2) Rewarding the winner in the form of congratulating the winner, displaying interesting animation, or giving a game as a gift. Thus, it is clear that there are three sections in an instructional game i.e. introduction, body, and conclusion.

Flowchart of Instructional Game Model

The following is a flowchart model of instructional game offered by author:

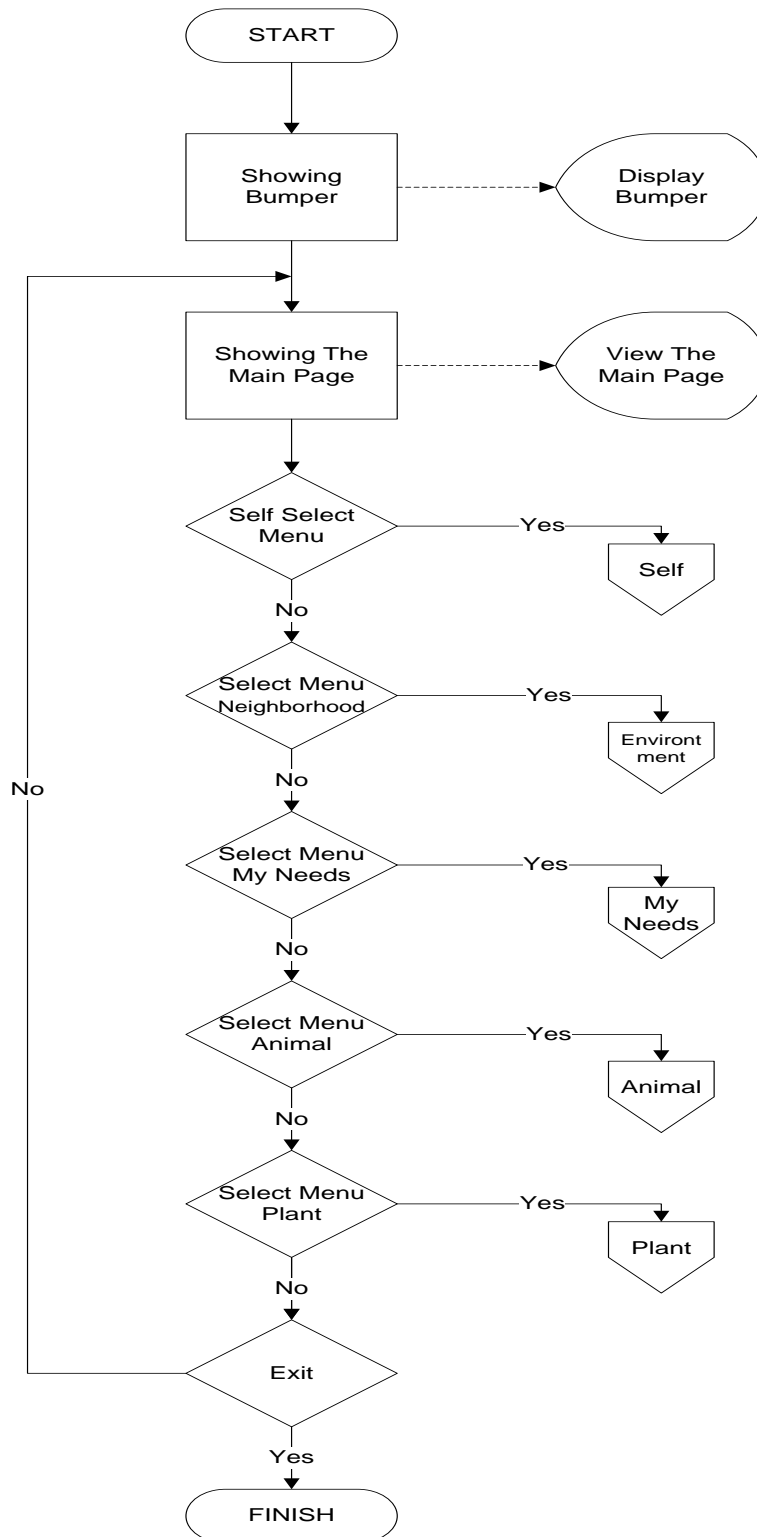


Fig.5. Flowchart Instructional Games

The flowchart games, developed by the author, are trained to the early childhood teachers as a tool to set the use of the instructional model of interactive multimedia games. The flowchart description is as follows: When the application is running, animated bumpers UPI (Indonesia Education University) logo and the identity of author are displayed. Then, the main page is displayed. On the main page, there will appear five menus namely *self* menu, *neighborhood* menu, *my needs* menu, *animals* menu, and *plants* menu. The application will

display contents according to the menu selected by the user. If the user selects the *self* menu, the application will display the contents of *self* theme; and so will the other menus.

3.3. Instructional Games Model in Early Childhood Learning Process

Computer games are sweeping the world of our children. PlayStation, for example, is not something our children are unfamiliar with. They are very familiar with running a game program easily. Undeniably, an incredible animated image is always capable of stimulating and making our children sit at their computer for hours until the game is over. Use of computer technology has become the need of every person. Likewise, the computer technology is used as an educational tool in many early childhood programs. Further, numerous studies have demonstrated its positive effects on aspects of children's cognitive, social, and emotional development (Clements & Sarama, 2003; Gimbert & Cristol, 2004; Wang & Ching, 2003). Children's success with these technology tools, however, is contingent on the teachers' skill in using and integrating technology (Haugland & Wright, 1997; National Association for the Education of Young Children, 1996). To become skilled in technology use, teachers require technology training that is current, appropriate, and effective (Haugland, 2009; International Society for Technology in Education, 2002).

The critical need for teachers with expertise in technology is widely recognized. In a recent survey of early childhood teachers, Chen and Chang (2006a) found that fewer than half of teachers reported feeling confident about using a classroom computer, less than one third were knowledgeable about criteria for selecting children's educational software, and only 30% typically included software when planning curricular activities. A number of factors have limited the effectiveness of technology training available to early childhood teachers. The factors most often cited include the following: training typically consists of a "one-shot" workshop that does not provide sufficient time for teachers to develop computer skills and apply them in the classroom; many workshop trainers, although expert with computers, lack knowledge of child development and have little classroom experience; technology knowledge and skills are taught in isolation, without explicit reference to their application in early childhood classrooms; and little or no follow-up is provided to support teachers' need for technical assistance (Benton Foundation, 1996; CEO Forum on Education and Technology, 2001; Chen & Horsch, 2004). A learning game is a learning model of interactive multimedia by using computers. The learning materials are packaged by author into a model of instructional games. Children learn by playing certain materials packed in an instructional game combined with other media. In the training, teachers are trained to use the game as one of the instructional interactive multimedia models developed by author with the help of multimedia experts. Furthermore, ways to have them are also given in several ways: first, ordering; second, buying; and third, if possible, teachers can produce and design their own products according to the design developed. The use of interactive multimedia can be carried out through systematic measures as tool aids for educators in conveying learning messages. Thus, the use of instructional games in learning process is essentially the teachers' efforts in creating interesting and fun learning for young children by using interactive multimedia tools. Mandouvalou and Papadaniel (2011) in study say the series is designed especially for preschoolers and first graders, with the goal of introducing them to phonological awareness through exposure to the spoken language of a surrealistic story and the language of animation. The spoken verse reaches their ears as an endless river. Even if some words cannot be understood -for each letter 100-120 words have been used starting with the same phoneme- children understand that the spoken language in this little story, is divided into words, syllables and of course the smaller building block of the word, the phoneme.

The perception is reinforced visually by notational and pictorial representation of letters, both as elements of the images within the story, as well as elements within a word. The series can be used as a daily exercise on the sounds of language. Multimedia model used is an instructional games model. Rusman (2012, p.313) said that instructional game is "a learning method which is on based on computer". The purpose of instructional game is to provide children with experience that facilitates them with educational games. It does not always need to imitate reality. It should be fun and challenging for children. An instructional game can be easily seen by recognizing patterns of the learning games which are properly designed so as to make the learning more fun and challenging. The games need to have basic components that can increase motivation such as promoting the nature of competition in gaining something desired, so to say, it is the purpose of learning. As quoted from Asep Herry in Riyana, C (2009, p.163), steps to be taken in making instructional games as a learning model are as follows: *First*, goal: every game should have objective and in this case it should have a learning purpose. *Second*, rules: rules will decide what the player can and cannot do in the games. *Third*, competition: such as attacking enemies, beating yourself, beating the chance and settable time. *Fourth*, challenge: the hanging in Hangman is an example to give punishment to any failure of words guessing. *Fifth*, the game is often dependent on the development of imagination to give motivation to the players. *Sixth*, the games should provide a safe wayout in facing real dangers. *Seventh*, almost all entertaining games could be used to motivate learning. The following is a front view of instructional game designed by the researcher with the environment theme.:

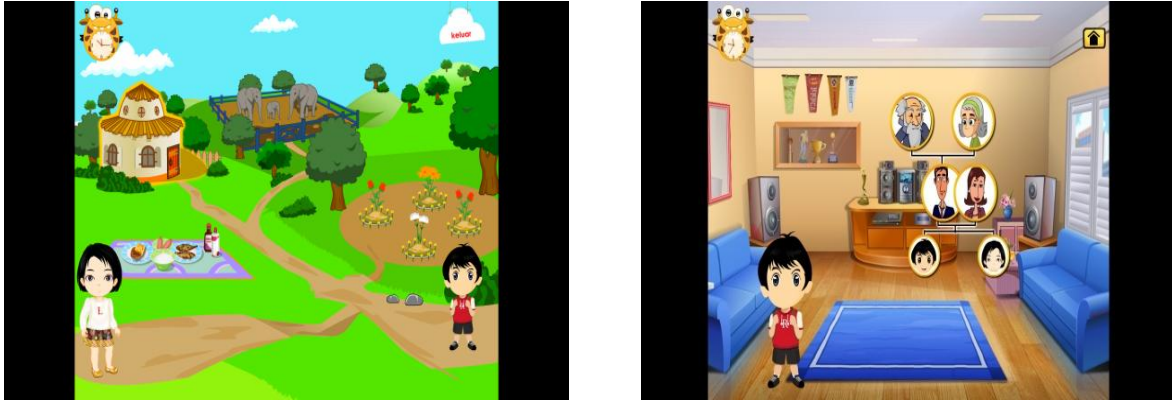


Fig.6. The front view model of instructional games

The themes above can be explained as follows: Gaming applications can be performed in the first half of the learning process. The themes are: *environment, sub-themes, school and home environments, introducing school, friends, parts of school building, introducing family members, and introducing functions and parts of a house*. The opening is the display of the Universitas Pendidikan Indonesia (UPI) logo, two prominent created characters ‘Lala (women) and Rio (men)’ with a little animation. Introduction: The second page is a welcome remark for players, and followed with playing with Lala and Rio with a game choice about environment. The preliminary findings of this study support that the model of instructional games can facilitate students' learning motivation, their ability to solve problems, and their learning creativity in the use of interactive multimedia. Interactive multimedia learning method is a collaboration of students, teachers and computer devices. Information related to patterns of collaborative interaction when children are engaged in an educational computer program will help provide inputs and guidance, and in turn, to more develop educational software for children. It is important to ensure that the educational computer software packages in the future could be more structured and developed. This is carried out to further maximize children's collaborative behavior so that they are able to support one another in learning. In addition, teachers of children are given the opportunity and the freedom of creativity so as to ensure that the computer can their students' potential.

The purpose of education by using computers can only be achieved if teachers, early childhood educators, and researchers want to be open-minded to any current and relevant issues, ensure that the computer program used is appropriate, and contribute to the theoretical and experimental databases used to guide children to use computers (Silvern & Silvern, 1990). The advantages of using interactive multimedia in learning and teaching process are as follows: In terms of interactive learning, this system is considered more innovative; Teachers will always be asked to be more creative in finding breakthroughs in innovative learning; Teachers, in achieving the learning objectives, will have the ability to combine text, images, audio, music, animation or video simultaneously in one; Increase learners' motivation during the learning process in order to obtain the desired learning objectives; Teachers will be able to easily visualize difficult materials which are only described with conventional props, and Train learners to become more independent in gaining knowledge.

Early childhood education settings develop necessary foundational skills required for children to (a) successfully transition into public school settings, (b) participate effectively in the curriculum, and (c) demonstrate achievement in key content areas. Among these important skills are emergent literacy (e.g., phonemic awareness, word recognition, concepts about print, alphabetic principle, and comprehension); basic math concepts (National Association for the Education of Young Children [NAEYC] and the National Council of Teachers of Mathematics [NCTM] 2002); play (Cook et al. 2008; Miller and Almon 2009), and socialization (Katz and McClellan 1997). In fact, the No Child Left Behind Act of 2001 (NCLB) emphasizes school accountability for student achievement in foundational core subjects. Key foundational skills for success in these core subject areas are developed in the early childhood years, though in today's world the way in which education professionals approach their development with young children should be viewed through the lens of rapidly changing, technology-based, twenty-first century society. As noted by the Partnership for Century Skills (2002): “the world in which students live has changed ... The explosion of powerful technology... demands a drastically different set of skills. Rapidly evolving technologies have made new skills a requirement for success in everyday life.” (p. 6).

IV. CONCLUSION

The way children think is different from that adults do. Thus, the way children learn is different from that adults do. Children learn through playing. Playing is necessary for children. When playing, a child will imagine and come up with ideas stored in his or her mind. The role of this education is to help people improve all potentials through playing. People have more chance to do exploration so that the concept understanding and the basic understanding of knowledge can be understood more easily. Based on the understanding of the way children learn, it is known that children need to learn by playing. Therefore teachers for children have to be creative to facilitate the children with the development of their intelligence through fun and interesting learning. The problem is that today the tendency for early childhood teachers in teaching the children is still monotonous. Children focus only on their teachers. Teachers only use conventional media and are not able to creatively design the children's learning by using other media relatively different. This situation is not certainly useful for children. The solution is that teachers' creativity can be increased through training programs in designing the learning. Limited knowledge and teaching skills of early childhood learning can be enhanced through training of instructional games model.

The author proposes an idea to create a more fun and interesting learning for children by using interactive multimedia in the form of instructional games model in early childhood institution in Medan, North Sumatera Province, Indonesia and of the domain of educational technology. The results of this study produces instructional game software on CD (*compact disk*) are integrated into an interactive multimedia computer. Interactive multimedia is the combination of more than one media and it must be interactive. The play control is on the children. In terms of media development, the teachers can work together with the interactive multimedia experts. Through learning by using interactive multimedia in early childhood education, it is expected that this model of playing can be a learning choice for children because the more concrete learning material children can get, the more experience they can have. The advantages of using interactive multimedia in learning and teaching process are as follows: In terms of interactive learning, this system is considered more innovative; Teachers will always be asked to be more creative in finding breakthroughs in innovative learning; Teachers, in achieving the learning objectives, will have the ability to combine text, images, audio, music, animation or video simultaneously in one; Increase learners' motivation during the learning process in order to obtain the desired learning objectives; Teachers will be able to easily visualize difficult materials which are only described with conventional props, and Train learners to become more independent in gaining knowledge. By integrating computer technology into interactive multimedia through appropriate strategies, and promoting and modeling prosocial behaviors, teachers can help children develop positive interaction patterns during collaborative activities on computer. Thus, it is imperative for early childhood teachers to afford or to put appropriate information computer technology on the same status as other traditional early childhood learning materials and activities.

V. ACKNOWLEDGEMENT

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