THE PROJECT APPROACH

*by* Wahju Dyah Wardhani

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THE PROJECT APPROACH IN EDUCATION OF FLASH FLOOD DISASTER ANTlClPATlON FOR EARLY CHILDHOOD EDUCATION

Wahju Dyah Laksmi Wardhani - Muhammadiyah Jember University

Abstract

Disasters are often regarded as divine destiny and become a part of the natural processes. Since the tsunami disaster happened in Aceh on December 2004, it makes the nation and Indonesian government realize about the importance of understanding the disaster. The development effort of values to reduce the risk of disaster is already manifest in the ministries and cross-sectors. Unfortunately, introduction in early age has not been done in early childhood education (PAUD), this based on the result of studying the development program of Disaster Preparedness School (SSB) which is formulated for K-12. This article will convey creative ideas about the design of the development of disaster education model for early childhood through activities by using project approach. The instructional design will integrate in the theme that is used for early childhood education (PAUD). The project approach is used because early children learn holistically and based on interest and also train them to think and act critically.

Keywords: Disaster Anticipation, Flash Flood, Project Approach

A. Background of Study

Indonesia is an archipelago located at the confluence of three tectonic plates at among Australian continent, Asian continent, Pacific Ocean, and Indian Ocean (Suharyanto and Widyastuti; 2012.2). The plates are the active skin of earth which collide each other. Furthermore, Indonesia is also located on the ring of fire which is old volcanic mountains on the east and south sides along the Sumatera Island to the Nusa Tenggara through Java Island and finished at the Sulawesi Island. This is the condition that caused Indonesia to a great potential for some disasters such as earthquake, volcanic eruption, tsunami, flood and landslide.

ln the Rencana Nasional Penanggulangan Bencana Republik Indonesia (2010;

20), it is noted that in the history of Indonesia there were great natural disasters and the effect was crossed the state borders. In the past, disaster is always regarded to an extreme natural condition that caused the larger changes to environmental conditions of both physical and non-physical. In other words, disaster is always connotes as a natural disaster caused by Divine destiny. The development of modem science proves that disasters are not always caused only by divine destiny. Thus the definition of disaster is a phenomenon that can be caused by human behavior to the environment, utilization of science and technology, or because of disease outbreaks. The change of environment or

**narua,** then, can cause the global climate change.

In addition to the hazard of large-scale :natural disasters, Indonesia also has a potential for local-scale disasters. The local natural disasters can also cause not a small number of losses although the victim is not as much as the large-scale natural disasters. According to Rencana Nasional Penanggulangan Bencana Republik Indonesia (2010; 14-23), the change of global climate may hazard local disasters such as an extreme wave and abrasion, the climate change, an erosion, land and forest fire, flood or drought. One of disasters that widely spread in Indonesian region is flood. It can be said that flood is a kind of local disaster which is a concrete phenomenon known by children.

In the present, educational program for disaster anticipation that should be

constructed before the disaster happen is not yet held broadly but only focusing on the elementary and secondary school. As an integrative holistic learning, understanding of disaster can be constructed since early age through learning activities in Early Childhood Education (PAUD). The introduction of disaster anticipation in Early Childhood Education (PAUD) is an appropriate program to do because early childhood is at the top of golden age where the construction of new concept and knowledge about disaster-based environment will enrich children s cognition.

The effort to introduce about disasters in early age,. especially based on the

experience of local disasters will provide opportunity for children to construct the new knowledge about nature and their environment as well as the hazard of danger if the management and maintenance of the environment is not right. Besides, it will construct the discipline and children s behavior when there is a hazard of disaster. The importance of setting up a reformer generation who has knowledge about environment and aware about disaster is a part of curriculum development for early childhood education that should be considered, assuming the survival of the nation and homeland within the next 20 years is in the hands of the early childhood.

The problem is there is no appropriate learning program about disaster anticipation for early childhood. This is known from preliminary studies of focus group discussions with 10 early childhood educations teachers in Situbondo, as one of the districts as the area where the flash flood is often happened there since

2002. Research of information about the absence of learning materials about the disaster followed up by studying the literature on disaster preparedness school (SSB) and the policy on Mainstreaming Disaster Mitigation or Education of Disaster Risk Reduction that already formulated by the Curriculum Center and Library of Ministry of National Education together with the World Bank.

The development of learning models about disaster knowledge that already

exist is designed for the end of childhood in which their cognitive skills have been developed, so the material is presented in abstract conceptual form. This can be

said that the learning materials that are proper with the early childhood's need who are being moved from pre-operational thinking skills towards concrete operational still undiscovered. Another thing that is also being the concern is many issue about disasters are not always related to the real condition happened by children. The understanding about the situation of disaster that may happen and experienced by children should be built from the condition in the area where they were live.

Therefore, we need a model of disaster education that provides basic knowledge for early childhood about the importance of disaster issue especially the disaster issue around the children's residence. This model should be designed through holistic approach, fun, and based on the children's need and interest. This learning approach is designed to be implemented by early childhood's teacher through learning activities which integrated with the curriculum applies. The purpose is to build knowledge, attitude, and children's skill and become an act skill that needed in the certain situation and also to make the skill is owned by children to face the hazard of disaster.

The learning approach which thought as the proper approach that can meet

the children's need and interest in disaster education is the project approach. Through the project approach, teacher can design the involvement of children more completely. The planning activity program based on children's need by giving them opportunity to explore and manipulate the media that facilitated by teacher, then, they will reflect the concreteness of the cause of disaster, when the disaster happen, and after the disaster happened. The approach of disaster awareness uses flash flood disaster as a kind of disaster phenomenon which happens not only because of the natural process but also influenced by human factor. In order to anticipate the wider flash flood that may happen in the future, so the education of flash flood disaster anticipation is needed in early childhood education (PAUD).

8. Focus of Discuss

According to the explanation of the background of study, the problem to discuss formulated in this study is, "how is the development of project approach in education of flashtlood disaster anticipation for early childhood education?"

C. Limitation of Problem to Discuss

The study of project approach in education of flashflood disaster anticipation for early childhood education is limited to:

I. The development of learning activities in early childhood education for a

group of 5 to 6 years old or B group of kindergarten, the theoretical study about early childhood focuses on the characteristics of children's development for a group of 5 to 6 years old.

2. The study of disaster is focused on the flash flood education as one of natural disasters with its characteristics that already discussed in the development of Disaster Preparedness School before.

**D.** Theorettcal **Framework**

Disasters often regarded as a great incident that rglted an extensive loss impacts both the economy and casualties. According to International Strategy for isaster Reduction (Suharyanto and Widyastuti: 2012,. to) disaster is a phenomenon, substance, human activity or dangerous condition that causes death, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Further, according to the Rencana asional Penanggulangan Bencana Republik Indonesia (2010, appendix 1), the definition of disaster is an event that hazard and disturb the life and human livelihoods that is caused by natural factor, non-natural or human activity that leads the casualties, natural damage, loss of property, and psychological impact. Both of these definitions refer to those formulate9 the Disaster Management Act (20 H **.l)** about the definition of disaster that can be

seen as follows,

*A catastrophe, mi hap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which result in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude a to he beyond the coping capacity of the community of the affected area.*

Definition and limitation above gives the overview that a disaster can be

defined as the sudden event or event that causes damage to the life of society or community. This means that a disaster can be defined as three definitions, first is a hazard that is unexpectedly by humans. Second, a disaster is a vulnerable conditions that restructuring or deconstructing the normal life of a group or society as the impact of hazard in the wide scale. In other word, disaster could be triggered as the result of human activities not only from technology, but also social that happens in the certain time.

Disaster anticipation in this model refers more to the terminology of Disaster

Risk Reduction (DRR) proposed by UN ISDR, which is an element of the conceptual framework that aims to minimize the impact of disasters through an understanding of the stages of the disaster that began on the stage of prevention (mitigation), when disaster happen until survive to end of disaster (post) in order to create living in harmony with disaster.

One of disasters that have large-scale impacts is flood, as one of the natull

hazards that are hydro-meteorological. Basically, flood is a natural phenomenon as

an effort to improve the quality of human life. ' lood in disaster study is defined as an event in which the water in the river is overflowing exceeds the riverbed. There are 3 types of floods in the study of disaster and water resources (SDA) (2007, 60). First is flash flood; this is a great flood that happens suddenly because of the overflow of water discharge caused by the high intensity of rainfall and often carry the broken stone or the fall of natural dam as the material erosion in the upstream area of river. Second is a flood that is caused by the rising of sea levels, which is known as a tidal flood. Third is inundation because of the water is too slow flowing into the estuary as the result of sedimentation in the nature river or in the system of drainage channels and canals artificial reservoir. For this study, it will take a flash flood as a main problem as a stepstone.

The flash flood is not absorbed water in the mountain area as a result of illegal logging will directly stream down not to those major rivers, but to the medium river. Moreover, because it comes from the heavy rain, the mountain materials are often carried by water. However, in some recent cases like in Tomohon and Wasior Papua, flash flood also happened in the area which bas a good forest conditions. Flash flood was happened in these regions because of the natural dam formed in the forest is cracked because of the global climate change.

Early childhood in the ational Education Law o. 20 of 2003, is a child who is at a stage of 0-6 years old. Slavin said this series as a stage while Henniger called this as intelligence (cited in Wardoyo: 2013,. 35-39). Although both of them stated that the phases sequence are experienced by children in the age when they have the same developmental characteristics. Slightly different, Berk added that although the children are similar in age and developmental characteristics, however each of them is not exactly the same. Each child has his/her own developmental pattern and period of growth that influence his/her personality and learning style in the future.

Early childhood learning ability (capability) focuses on the ability to construct any concrete experience as learning experience is a form of new conceptual knowledge. Therefore, a thing which plays an important role in shaping human learning capability, according to Gagne (Gredler; 2011, 177), is the stimulation of the environment that influence the improvement of children internal processing. This stimulation is embodied in five learning variations that will yield learning capability with specific eacteriscic. These variation and capability (Gredler: 20W J, m 80) that is formed are verbal information, inte11ectual skill, cognitive strategy, motor skill and attitude of the learner.

There are five assumptions of Gagne (Gredler; 2011,. 196) in the development

of learning design: 1) learning by considering the individual needs of each learner·

2) learning design is designed in short-term stage with the context of learning stage is boarder and longer term· 3) learning design should be planned in careful thought" 4) learning design is designed with system approach· 5) learning design

is developtrlby considering the way human learn. The development of learning design for early childhood education should be designed by considering the stage of children s development which includes the stage of cognitive development, language, physical motor, social emotional, moral religious, and art. These developments must be inclusive, integrated, and become a meaningful experience in children s daily life. (Jackman; 2012, 36-37; Wortham; 2006, 48-50)

Learning capability that is owned by early childhood is quite different to the older children. The early Childhood is not necessarily to understand consciously about his/her owned learning capability. Their knowledge tends to the verbal information, so when identifying the cognitive skill of the children, teacher needs to give a longer time on the preparation of learning, especia11y to give children the opportunity to identify the learning capabilities they already owned. The ability to identify and assess the cognitive ability that must be done to guide the children to learn complex tasks, monitor their own progress,. and change the knowledge that he/she has received called as metacognition.

While Garner and Alexander also Flavell (Slavin" 1997, 2ffl4) defines metacognition as knowledge about how someone study or how study should be done. The main component of metacognition according to Pressley and McCormick (Gredler; 2011, 274-275) are 1) knowledge and awareness about the thought of self 2) knowledge of when and where he/she should using the strategy that was obtained before. Therefore, it is needed the learning design that is

designed with specific strategy in order to improve the children s metacognitive

skill.

Meaningful learning experience for early childhood can lbe seen from constructivistlc theory, which according to Savin - Baden (Ward· 2013,. 40) that the model of learning concept faced by children will help them to reconstruct the concept based on the learning experience and social interaction in the process of solving a problem. However, Piaget by referring the theory of information processing argues that there is an organizational structure and process in the cognitive structure of each in every individual. The human thinking behavior pattern of an object is called a schema. Schema is formed from the interaction and children s thought of their environment through adaptation by means of assimilation and accommodation. Adaptation (Ward; 2013, 32-33) is the process of adjusting the scheme in response to the environment.

When interacting with the environment, children will get a variety of objects that build their knowledge structures. This process is known as assimilation, a process for understanding a new object. If this new object is already interpreted by children and they keep in their scheme, then when children is in a condition where scheme they owned was not in line with the other new objects, the children will make an effort to modify the existing scheme into the new knowledge. This process is known as the process of accommodation.

An effective learning design for early childhood is those which able to involve the children as an individual or a part of a group. The learning design is also designed by the purpose of pragmatics need or children s long-term knowledge. Therefore, in Development of Appropriate Program, Kostelnik, Sorderen and Whiren (2007, 39-42) argues that the learning design will help teacher to 1) organizing their thought and action; 2) thinking creatively of what they wanted to do· 3) preparing the appropriate media; 4) mapping the instructional pu , e for pragmatics need. and children s long-term knowledge; 5) accommodating the needs of all children including those with special needs· 6) identifying the learning standard which is accurate and appropriate for children.

Leaming design for early childhood is prepared not only aims to provide the direction of kind of learning to be done, but also to guide and stimulate the task of children s development. As stated by Bredckamp and Copple (1995), that the development of early childhood learning should be designed integrative, useful and provide direction for the stimulation of children s development. Meanwhile Wortham (2006, 191) argues that the complete thematic development can be a framework for early childhood education curriculum development and help the process of children s scaffolding,

This development of learning design or plan can be done by using the project

approach. According to Jackman (2012, 61-62), project approach is an effort or step in learning by doing the deep probe or investigation of the topic being discussed. Learning activities by using project approach provides an opportunity for teacher to design, implement and teach the learner the challenge of critical thinking, analytical, and logical.

Setting activities within the project approach includes several phases as

follows, according to Judy Harris Helm and Lilian G. Katz (2001, 9): 1) choose a topic *I* theme *I* subtheme that will be studied deeply and broadly. Themes and subthemes discussed by the teacher can be taken from the experiences of the children. 2) get a new information. This new information is obtained by children as a result of their direct activity and real experience. Children develop and expand the topic from investigation activity· 3) finish the project by reviewing of what has been learned and involve children and their families at final theme activity to explore together.

Study of the children s involvement or the importance of giving the children

issue about disaster is a relatively new field of study. Some studies as what Martin (2010) did in Bangladesh on children s participation in reducing flood risk, research by Lopez et al (2012) on the involve : of Children and parents to make a plan for emergency response, Institute of the Study and Development of Women and Children (LSPPA) Yogyakarta concludes the importance of children involvement in the process of disaster mitigation in order to make the children as the mediator for sharing the education of disaster anticipation in the wider

environment.

The other study explains the importance of introducing children to the concept of disaster by the purpose to make them having the ability to face and overcome the complex condition after the disaster happened. Davis (cited in Winter 2004) describes the process on how the children face the condition after an incident on 11111 September and the role of teachers to help children overcome the stressful after the incident happened.

The project approach is believed to be capable of being the place for children

to construct and improve their cognitive skills like in the study conducted by Hooks and Duarte (2005), Sands, Carr and Lee (2012), Salmon (2007), Warren et al (2011), Ergazaki and Zogza (2013). The project approach is also believed to improve social emotional skill and self-awareness of the children in their environment as it is studied by Logue and Kim (Summer 2011), McCaan (2014), Rosenow (2008).

E. Developing the Project Approach in Leaming Process of Early Childhood

Education

There are three stages (phases) that should be done in the process of developing the project approach. First phase is analyzing the need for learning to be carried out, making the scheme of theme/topic and the conceptual, deciding the activities and learning experience that will be implemented holistically, deciding the theme/subtheme that is appropriate with the conceptual stages to be achieved, and developing design activities. Second phase comprises the step of checking the concept scheme, plan for field activities, conduct exploration and invention activities collect/record the finding, identify/explain the finding. Third phase is planning for final theme activities based on the identificationof the finding, final theme, reviewing the activity that already done together and understandingon the concept.

The rules of implementation of project approach in education of flood disaster anticipation for early childhood education can be broadly described as follows:

I. Conducting requirement analysis based on initiatives gained from the

facts, learning sources, parents and surrounding society, or curriculum.

The introduction and behavior habituation also attitude toward the disaster should be done by using an approach based on children's learning style that is playing. This is an important thing that should be considered because of two reasons. Firstly, children in early age love playing activity as the learning strategy to understand the abstract thing behind the concrete one. Through playing activity, children learn to understand a concept which later becomes a new knowledge for them. Children also learn to define an abstract concept through playing; this is because playing is free from workload, and children can build their own rules based on their wish and interest, and playing is always become a pleasant thing

for children. Secondly, early childhood are learning from a concrete thing, whereas a disaster is not necessarily happen in their daily activity, it means that disaster is often be an abstract thing that its existence is hard to understand by children. Through playing activities, an abstract concept of disaster is designed to present as a concrete condition. Therefore, the children will be easier to involve in activities when the "disaster" is happened.

2. Making the scheme of theme and subtheme based on requirement analysis

Through playing activity which is designed by the more concrete approach, teachers are helping children to build a new knowledge. The disaster knowledge in early childhood education is usually built by teachers through some themes and playing activities that involve stimulation that helps children to build an attitude on the values to know that God as the Creator, environmentally conscious, as well as how to have a good attitude to avoid the damage of natural environment that can caused the disaster. The themes are can be water, fire, and air; my homeland: nature around me, life in the mountain and the beach and another theme that allows teachers to build an attitude and new knowledge for the children about disaster.

3. Planning the activity and learning experience that will be obtained by

children.

However, frequently the activity in those themes is limited to only build children knowledge about the disaster that thought to exist outside themselves and their environment. Teachers have not built up the knowledge that the disaster is also possible to happen to children and their environment. Teachers are also present learning activity through playing activity that is well prepared without any involvement of the children to find and prove by themselves about why the disaster could happen. For example in the theme of Life in Beach and Mountain, teachers are mostly present in the form of storytelling or using picture in the children's activity sheets. Therefore, children do not have the involvement to know the process of flood or landslide could happen because of deforestation. Although

it was concrete and clearly observed by children, but picture and movie is out of the context that cannot directly give the real experience for children, so it is not really give a meaningful learning experience for children. Therefore, the stimulation method is also necessary in the development of learning, so that children will get a whole knowledge about how are the situations before the disaster, when disaster happens, when the emergency response must do, and the situation after the end of disaster. Besides, the activity needs to be designed into a whole entity with aspects of children's development and also the curriculum applied in early childhood education. This means that the activity and aspect of development has been planned since the teacher designing Work Plan of Semester, Weekly Work Plan, and Daily Work Plan. Those activities should be designed by considering the diversity of children in developing learning capabilities to achieve

the improvement of children s metacognitive on disaster awareness skills ..

4. Deciding the whole discussion topic in a series of daily activity

Daily activity is a series of activities consist of opening until flnlshing, with some improvements. For early childhood education which implements conventional learning style, these activities are used as the teacher s guide .. However, in early childhood education which implements the model of core activities carried out in certain centers with a center teacher, then the team of teacher should design the development of learning completely with the topic that already explained in the classical opening activity. The topic that wanted to be achieved here can be integrated in theme based on the kinds of competence or learning experience that is expected by teacher can be delivered to the children. Topic of discussion can be designed based on response to disaster before the disaster, by providing some topics related to build the knowledge about disaster especially the characteristics

of flash flood.

5. Developing activity design and recheck the conceptual scheme

Developing this activity design is important to do in order to make the teacher to be able to plan carefully how this learning activity about disaster is able to build the knowledge and. children s act skill in flash flood anticipation. In designing teacher activities, it is necessary to structurally and completely design the stages and goals to be achieved, time management, implementation management, activity place management, also supporting media which is needed. In general, developing education of flash flood disaster anticipation cannot be designed only between teacher and student. Teacher needs to involve some parties other than parents. For example· involving village government, local health clinic, or BPBD (Regional Disaster Management Agency) as the team which is competent and have the authority on disaster, the TAGA A team, and some other sources such as ' orestry Department, or Forestry office in that location. urther, there is a stage in disaster education that cannot be skipped because the process of disaster is a fact but it is not necessarily happen and faced by children within an estimated time. Therefore, the construction process of disaster resix& is should be trained completely in every opportunities, from the stage of pre-disaster, during disaster and post• disaster. This is also useful for evaluating the stage of concept achievement and skill acquired or developed by children.

6. The Peak Theme

The Peak theme is an integral activity with the project approach. The Peak theme is a place for student to develop the competence stage in every aspects of development that have been learned in the form of social skill. The final change is also become the foundation for teacher to review the achievement of the development aspect of his/her student and also the further learning development. Basically, the final theme is ideally done at the end of the implementation of specific theme. The Peak theme is also not always meant as conducting learning

activity outside the school. Related to the plant theme which is connected with the concept of pre-disaster, the final theme can be conducted by a planting activity involving the village government and local Forestry Department as the seed supplier.

**F. Conclusion and Recommendation**

As one of approaches in early childhood education, the project approach has some things that facilitate the development in education of flash flood disaster anticipation in early childhood education:

1. Project approach allows learning development which is designed to develop every aspects of the development of early childhood completely and holistically,

2. Developing activity in the project approach can be designed to develop metacognitive aspects based 0111 the children s interest and need through playing and giving sustainable exercises.

3. Through the project approach teacher can construct the competence, concept, or skill that is required by children in pre-disaster, during disaster/emergency response, also post-disaster.

According to the conclusion above, the researcher provides some suggestions as

follows:

a. Leaming activity by using project approach is needed to be conducted in early childhood education that aims to construct the response to disaster from early age considering the potential hazard of disaster which is not necessarily experienced by children in daily routine.

b. The knowledge of response to disaster needs to be trained and socialized from

early age considering the children as the most vulnerable to be the victim in a disaster and as a preparation to life in harmony with the hazard of disaster.

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