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Instructional Games "Remang" for Child Victims of SinabungMountain Eruption in Karo Regency

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***Abstract*-this study aims to develop instructional gamesin the form of play therapy with title *remang* for children in Karo Regency due to the eruption of Mount Sinabung. The approach in this study used a qualitative approach during preliminary study, design and model formulation. Quantitative approaches will be used when testing and validating models. The instructional games are developed using modifications to the 4D model: define, design, develop, and disseminate. The implementation of this research activity is divided into three main stages which will be carried out for two years consisting of: (1) phase of preliminary studies, empirical studies and policy studies; (2) stage of model development; and (3) phase evaluation of pre-test and post-test.Based on the results of data analysis, the average value in the experimental class was 4.19,and there was a control class of 2.745. So it can be concluded that the motivation of the experimental class children is better than the control class. From the results of hypothesis testing obtained t_ (count)> t_ (table) which is 20.64> 1.462 at the real level α = 0.05. Thus, the game media dimly influences significantly on the motivation of children in SimacemBekerah Elementary School after the Sinabung eruption.**

Keywords-Instructional games, Karonese culture, children

I. INTRODUCTION

Indonesia is a region with many active volcanoes. These active volcanoes, when it erupts will remove the materials in it such as lava, gas, ash, and someother uncertain materials. This is called an eruption. This eruption can also be interpreted as the process of escaping oil and steam from the inside of the earth.The process of eruption occurs because of the activity of magma in the bowels of the earth trying to get out to the surface of the earth.

The very strong gas pressure, constantly pushing the magma out.This then pushes the magma to move up gradually.This unleashes the pressure that comes from within the earth will be even higher. This pressure holds a powerful force that makes the surrounding rock layers brittle and cracked. Then from this crack magma will spread out to the surface of the earth. Magma that goes to the surface of the earth is called an eruption event.

Karo Regency is one of the regencies in the province of North Sumatra, Indonesia, which capital is Kabanjahe City. The district has an area of 2,127.25 km^2 and the population of ±382,622 inhabitants. This regency is located in the Karo highlands which is part of the row of Bukit Barisanin North Sumatera. There are two active volcanoes located in this region, namely Mount Sibayak and the mountof Sinabung.One of the volcanoes which arethe mountof Sinabung since September 2013 began to erupt. Until now, the eruption is still happening so many of the residents who live around the foot of Mount Sinabung have to stay in the evacuation. During the evacuation manyproblems occur in their lives, especially in children, such as the delay of an education process, the condition of evacuation location that is less conducive to health and sanitation, even the psychological development of children are also disrupted. These conditions make it difficult for children to actualize themselves by the needs of their development.

Based on preliminary observation of refugees in JamburTongkoh, it was found that during the evacuation many parents lost their jobs, some of them have started looking for new activities to earn a living and some return to their fields for replanting. This situation makes the parents do not have much time to supervise the development of their children during the evacuation. Children should learn to socialize by themselves in evacuation without being accompanied by their parents. The post-disaster eruption, children's motivation to study tends to decrease. Besides, they also have to move to schools locations close to their refugee camps. Based on the results of interviews with some of the victims of the eruption, they tend to be less comfortable when faced with new school situations, teachers, and new people every time they migrate. They also have to accept the fact that they lost their homes, lost their favourite things, even lost family members. The hot clouds and volcanic dust they once saw also traumatized them psychologically. It makes them feel reluctant to play outside and tends to feel anxiety when they see a cloud of smoke.

The Family Welfare Coordinating Board (K3S) together with the Indonesian Red Crescent (BSMI) has conducted a child trauma refugee program at Istihrar Mosque, Karo. They guide children to activities that can be re-energizing, such as playing and singing or dancing

competitions with local traditional music. One of the most effective methods often used in child counsellingis played therapy. The Association for Play Therapy has defined play therapy as the systematic use of a theoretical model to establish an interpersonal process, where trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties and achieve optimal growth and development.

Play therapists must be responsive to their clients' culture, and as the field grows globally, the application of Western play therapy theories and practices in other cultures is another area of concern. Several play therapy trainers who provide instruction in a wide variety of countries have noted that the dynamics of issues-such as sexual abuse, family violence, and alcoholic parents-dealt within therapy there are very similar to those in the United States. Nevertheless, individuals who either provide training in other countries or cultures or return to their own after training abroad must consider cultural differences. While some cultural adjustments-like types of toys and materials-are easily accomplished, others are difficult to identify[1].

In the year 2001, Shu-Chen Kao and Landreth described how helping children grow and develop within the belief system of their particular culture may mean changing how play therapists work with them. For example, "returning responsibility" is a common therapeutic response used by play therapists, as in, "You can choose," or "That is something you can decide." This helps children develop, among other things, individualism. However, individualism is a Western value, and so Kao and Landreth suggested rephrasing these facilitative responses in ways that would help Chinese children learn to rely on self in relationship to others. Another example is the participation of extended family members in the therapy. Traditional Hispanic families may have in the family system many adults who expect to be involved in meetings with the play therapist, both in consultations and in therapy[2].Based on the formulation of the problem, the objectives of this study are as follows:

a) to know the empirical condition of children who are in evacuation camp post-eruption of MountSinabung;
b) to design the play therapy instructional games that will be developed to help children after the eruption of Mount Sinabung;
c) to implement play therapy instructional games that will be developed to help children ofthe eruption of Mount Sinabung;
d) to know the effectiveness of play therapy instructional games that will be developed in helping children after the eruption of Mount Sinabung.

In general, this research is expected to generate findings that provide benefits to the continuing implementation of education of children victims of the eruption of Mount Sinabung. The findings of this study are also expected: (i) assist teachers in the implementation of teaching and learning process, especially in developing the ability of emotional stability of learners, (ii) to improve institutionallyand school policies related to the utilization of local cultureto contribute optimally for better education improvement for the community, (iii) being a reference for researchers in developing technology as a tool of learning based on local culture, and (iv) as a reference for other researchers who will develop technology-based learning.

Play therapy is a therapeutic process that uses the game as a therapeutic medium for easyviewing of a child's natural expressions that cannot be expressed in verbal language because the game is an entrance into the world of children[3]. Play therapy has an extensive history of research that demonstrates the practicality of using play therapy interventions with children across ages and issues. Play therapy clinicians, whose numbers have grown significantly in the last decade, base their therapeutic practice on known benefits that play therapy provides to young clients. Play therapy has been demonstrated to improve the self-concepts of children, decrease anxious behaviours, lessen externalizing and internalizing problem behaviours, and increase social adjustment[4].

Play process also allows children to consider new possibilities not possible in reality, thus greatly expanding the expression of self. In the safety of the play therapy experience, children explore the unfamiliar and develop a knowledge that is both experiential-feeling and cognitive. It can then be said that through the process of play therapy, the unfamiliar becomes familiar, and children express outwardly through play what has taken place inwardly. A major function of play in play therapy is the changing of what may be unmanageable in reality to manageable situations through symbolic representation, which provides children opportunities for learning to cope[5].

Thorough review (meta-analyses and systematic review), rigorous controlled research designs (RCT), quantitative and experimental explorations (SCED, quasi-experimental, and cohort), and qualitative studies support the use of play therapy with children ages 3 to 12 years old. Research signifies that play therapy is an effective intervention for children who present with externalizing and internalizing problems, self-concept issues, reactions to traumatic events and complexities, developmental delays, social-emotional challenges, and relationship difficulties. Research studies thematically support the use of play as the primary communication tool for young children [5]. The play therapy is a counselling approach derived from several existing counselling theories. The counselling process is focused on re-living the experiences of childhood. These experiences are subsequently reconstructed and used as a foothold in solving client problems.

Play therapy is an effective and creative way to work with children with emotional disturbances. Play becomes a way for the child to communicate and heal. Computer/video games are fun and inviting to children, and have been used in many different settings with

children. To examine the effectiveness of computer/video games as a play therapy tool in treating emotional disturbances, a qualitative, collective case study design was used. Overall, the findings from the study supported the fact that children suffering from emotional iv disturbances encounter difficulties academically, emotionally, and socially. The findings support the literature that plays therapy is effective in treating children suffering from emotional problems. Finally, the findings confirmed the usefulness of video and computer games as a play therapy tool with children suffering from the emotional disturbance of sadness[6].

Games provide a good environment in which to help students learn about learning and learn about themselves as learners — this one of the justifications for making use of games in education. As you help students learn a game, you can make it clear that a game has rules that must be learned. You can make it clear that there are many learning and playing strategies that are useful both in lots of different game settings and in lots of different non-game settings. You can make it clear that each game tends to have some specific strategies that make a significant contribution toward increased expertise in playing the game. You can make it clear that the same "specific strategies" situation holds for developing an increased level of expertise in each discipline. One of the advantages of a game environment is the relatively short period required to move from a being a person first being exposed to a game to a person with a reasonable of expertise in playing the game—a person who can play for enjoyment and learning while playing. Itis in marked contrast to much of traditional learning in school[7].

The educational games and simulations may be especially useful in developing higher-order skills- such as strategic thinking, interpretative analysis, problem-solving, and decision-making. For example, in games, players are making decisions continually, in contrast to low levels of decision-making in traditional learning. Educational games and simulations may also be useful in developing complex aspects of expertise, not simply short-term memory of facts. These higher-order knowledge and skills are typically not revealed by tests of facts, or standards of learning-types of examinations. Instead of concrete measures of learning outcomes, what is available is typically strong anecdotal evidence-kids that participate in the game,and simulation-like learning are very excited, they are motivated, theyare immersed, and they seem to do better. Besides, games and simulations tend to blur the line between education and training, as they involve learning-by-doing. For example, decision-making may be best assessed in a test of its practical use[8].

III. RESEARCH METHODS

This study is a research development using model development of 4D Thiagrajan model. Research and development method is a research method used to produce a particular product, and test the effectiveness of the product. This research is oriented towards product development where the development process is described as thoroughly as possible,and the final product is evaluated. The development process is related to the activities at each stage of development.

The research location used in this research is SD Negeri SimacemBekerah No 047175, Siosar Village Brand District Tanah Karo Regency, North Sumatra Province. The implementation of the study was conducted in February 2017 until November 2017. The subjects in this study were students class I, II, and III SD Negeri SimacemBekerah No 047175, Siosar Village as many as 45 students. Research subject was determined by purposive sampling as one kind of nonprobability sampling technique.The type of model development that will be applied is the 4-D model proposed by Thiagarajan, Semmel, and Semmel that are modified into four stages: the *first* phase of definition, the *second* stage of design, *the third* stage of development, and *fourth* stage of dissemination.

III. RESULTSAND DISCUSSION

From the research conducted, data were obtained from the experimental class and the control class. The acquisition of the data is obtained by final observation. From the data obtained will be carried out several tests such as normality test, homogeneity test, and hypothesis testing. The following will present the results of the initial observation and finalobservations of both classes as well as normality, homogeneity and hypothesis.The average indicators of the initial and final observation of the control class and experiment class. See table 1 below:

TABLE I. AVERAGE INDICATORS

No	Indicator	Control Class		Experiment Class	
		Pre	Post	Pre	Post
1	Deskriptor 1	13,37	14,68	13,31	20,93
2	Deskriptor 2	12,25	13,5	12,93	20,62
3	Deskriptor 3	12,68	13,43	12,93	21,06
4	Deskriptor 4	13,43	14,18	13,87	20,87
5	Deskriptor 5	12,37	12,81	12,93	21

The initial observation or pretest was carried out on the first week, i.e. without being given treatment to determine the child's motivation in each class both the experimental class and the control class. At the initial observation, it can be seen that the learning motivation of the experimental class and dick class is almost the same, where the average value of students in the experimental class is 2.64,and the average value of the control class is 2.57. In summary, the results of the initial observations of the two groups are shown in table 2 below:

TABLE II. PRE-OBSERVATION DATA

No	Statistics	Experiment Class	Control Class
1	Number of students (n)	16	16
2	Total (∑Xi)	42,24	41,2
3	Mean ($\bar{X}$)	2,64	2,57
4	Deviation Standard (SD)	0,146	0,141
5	Varians ($S^{2)}$	0,021	0,020

After knowing the level of motivation of children through initial observation, groups were formed for the

experimental class and the control group. For the experimental class, class B is applied to a dim game, while in control class A uses conventional learning (learning as usual) or without playing media. At the end of the meeting, students were given a final observation (post-test), which was to find out the motivation to divide the children of the two classes after playing with dim games in the experimental class and conventional learning in the control class. Based on the posttest results, it can be seen that the motivation of children in the experimental class has increased while in the control class has not increased or tends to be static, where the average value of students in the experimental class is 4.19,and the average value of the control class is 2.745. In summary, the results of the initial observations of the two groups are shown in the table.

TABLE III. POST-OBSERVATION DATA

No	Statistics	Experiment Class	Control Class
1	Number of students (n)	16	16
2	Total (∑Xi)	67,04	43,92
3	Mean ($\bar{X}$)	4,19	2,745
4	Deviation Standard (SD)	0,248	0,189
5	Varians ($S^{2)}$	0,053	0,03

From the results of the calculation of the initial and final observations above, there is a difference in the average initial and final observations of the experimental class and the control class. In summary, the average value of the two classes of students from initial to final observation can be seen in table 3 below:

TABLE IV. SUMMARY OF OBSERVATION

Statistics	Experiment Class		Control Class	
	Pre Obsrv	Post Obsrv	Pre Obsrv	Post Obsrv
Total (∑Xi)	42,24	67,04	41,2	43,92
Mean ($\bar{X}$)	2,64	4,19	2,57	2,745

Descriptively the child's motivation on the initial and final observations in the experimental class and the control class can be explained as follows: (a) the average initial observation of the experimental class (2.64) is higher than the average initial observation of the control class (2.57). Experimental Class> Control Class = 2.64>2.57, (b) the average experimental class final observation (4.19) is higher than the control class average (2.745). Experimental Class> Control Class = 4.19> 2.745, and (c) the difference between the average initial observation between the experimental class and the control class is 0.07,and the final difference between the experimental class and the control class is 1.445.

Based on the research conducted, it can be concluded that the game media has a significant influence on children's learning motivation. This can be seen from the data obtained by the researchers before and after learning with the playing media in the experimental class and the control class without using media.

In the process of obtaining the results of data analysis, before giving different treatments to the two sample classes, the researcher first made initial observations to see the early linguistic intelligence of the children in the two sample classes. In the initial observations in the experimental class and the control class, children's learning motivation is still quite good. After the treatment is given to the experimental class, the researcher re-evaluates (posttest) using the same instrument as the initial assessment instrument (pretest), namely the assessment sheet. Similar to the control class, researchers also conducted a reassessment using the same instrument with the assessment instrument in the experimental class without treatment.

At the initial observation, the achievement of the child's motivation score in the experimental class was 2.64,and in the dick class 2.57 so the initial child motivation score in the experimental class and the control class was almost the same. Then the initial motivation score difference test was conducted and obtained Fcount<Ftable or 1.05 <2.43, it was concluded that the two samples had homogeneous variance.After doing different treatments, namely the experimental class with and control class, the linguistic intelligence scores obtained in the experimental class 2.64 and the control class 2.57. From the results of the final observations, the two samples obtained a difference of 0.07. From the data obtained there are significant differences between the motivation of children in the experimental class and the control class. In the experimental class, the child's motivation has increased regarding encouragement to learn. While the control class did not experience an increase or tended to be static, this is because learning by using the *remang* media is exciting and fun for children so that the atmosphere and feelings of children are happy and enjoy learning, and children's linguistic intelligence also increases.

Based on the explanation above, then one of the media that can be used and influences children's motivation is through dim game media. Because with the media, children enjoy learning and listening, especially if the stories used are impressive. Through media adapted to the theme of learning and according to the needs and development of children, then when children learn a concept, it is easier to be implanted through the media so that children can listen to the story happily and understand the contents of the story directly. Given that children have different development characteristics from each other, teachers need to have special skills and abilities in planning, implementing and evaluating ongoing learning activities by taking into account the development of each child, especially the development of children's learning motivation.

IV. CONCLUSIONS

Based on the discussion of the results of the research that has been carried out, it can be concluded that the dim media game can influence the motivation of children's learning. Increasing children's motivation can be seen from the average value of the experimental class higher than the class. Increasing children's motivation can be seen in the final observation, where: the child has been able to speak well, repeating the contents of the story

without the help of the teacher, can complete themselves with perfect sentences.

Learning using a medium for playing games gives a good influence on children's motivation rather than conventional learning. This is in accordance with the hypothesis test obtained by tcount> t table, which is 20.64> 1.462. So that it can be said that HO is rejected and Ha is accepted, then the use of dim game media influences children's learning motivation after the Sinabung eruption.

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