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SPIN CHALLENGE AS AN EDUCATIONAL MEDIA TO INCREASE DISASTER MITIGATION KNOWLEDGE IN ELEMENTARY SCHOOL STUDENTS

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ABSTRAK

Lack of mature preparation related to disaster mitigation, low disaster response performance, and lack of introduction of disaster reduction education in the education sector are major disaster vulnerability issues in Indonesia.The need for disaster preparedness must be strengthened, especially for children. Children are one of the most vulnerable and often forgotten groups when disaster strikes. For this reason, children need to be involved in disaster mitigation activities through disaster mitigation education. Efforts to increase knowledge of disaster mitigation in children can be done using Spin Challenge educational game media. To determine how effective the Spin Challenge is as an educational medium to enhance the knowledge of elementary school students, this experimental study was conducted with a control group with pre-test and post-test. 82 students selected with a total sample approach were used as respondents in this study. Questionnaires on disaster mitigation are used to obtain data. In this study, the statistical tests used were the Mann-Whitney test and the Wilcoxon test. There are significant differences in knowledge levels (p-value = 0.000) of disaster mitigation before and after students were given disaster mitigation education using Spin Challenge educational media. There is an influence on the level of knowledge of disaster mitigation after children get disaster mitigation education using the educational game medium Spin Challenge.

Keywords: children; disaster mitigation; spin challenge

INTRODUCTION

Based on information from the National Disaster Management Agency, there were 2,469 disasters in Indonesia in 2022, resulting in 140 deaths, 25 missing, 736 injured, and 2,904,263 displaced[1]. Poor performance in disaster management, a lack of focus on disaster mitigation, and the ineffective role of education in implementing disaster mitigation education are the main problems with Indonesia's vulnerability to disasters[2]. The first step that can be taken to prepare for disasters is mitigation. Through education, quality improvement, the use of science and technology, and the use of simulation techniques, disaster mitigation activities can be used to reduce disaster risk. Disaster mitigation must be done formally and informally. School is an important aspect of fulfilling, guaranteeing, and protecting children's rights. Based on data compiled by the Ministry of Education and Culture (Kemendikbud) from 2009 to 2018, there are 62,687 schools in Indonesia that are vulnerable to exposure to natural disasters. 75% of schools are in disaster-prone areas, so disaster-safe schools are essential for students4. Children are often excluded from participating in disaster risk reduction (DRR) activities and disaster mitigation activities. Schools can provide protection by increasing knowledge and skills in dealing with disasters because children are a vulnerable group.

Based on preliminary studies, elementary schools located on the coast of Bantul district are Sekolah Dasar Negeri 2 (SDN 2) Parangtritis, Sekolah Dasar Negeri 1 (SDN 1) Parangtritis, and Sekolah Dasar Negeri (SDN) Bungkus. The school is a school that is very vulnerable to natural disasters. The three schools have received counseling several times related to disaster

mitigation and disaster preparedness schools, but counseling and mitigation education often have no follow-up, especially with the COVID-19 pandemic. Based on these data, it can be seen that disaster mitigation education is important and should be carried out as early as possible[7]. Through this study, researchers want to conduct health education related to disaster mitigation with spin challenge media.

METHOD

This research is a quasi-experiment with a control group design and pre- and post-tests. This study divided respondents into two groups: the intervention group and the control group. Researchers took all participants in the population using the total sampling method. Randomization was used to choose the respondents for the intervention or control groups. All 82 students in grades IV and V from SDN 2 Parangtritis, SDN 1 Parangtritis, and SDN Bungkus served as the study's subjects. 41 students are in the control group, and 41 students are in the intervention group. Education with the spin challenge was the study's independent variable. The dependent variable of this research is the understanding of elementary school students in the coastal area of Bantul Regency regarding disaster mitigation. The LIPI-UNESCO/ISDR (2006) study parameters can be used to measure the level of knowledge about disaster mitigation. Data collection was carried out by researchers by visiting elementary schools on the coast of Bantul. Pretest measurements were carried out first, and then respondents were given introductory material on disaster mitigation. After that, respondents were given treatment according to their respective groups. The intervention group was given an educational spin challenge game, and the control group was given education using pdf booklet media. After 4 weeks, respondents were given a post-test, and data processing was carried out. The normality test used was Kolmogorov-Smirnov because the study sample was more than 50. The normality test shows that the data is not normally distributed. Therefore, Wilcoxon and Mann-Whitney tests were used to analyze the data.

RESULTS

This study was conducted form March 10 to April 1, 2023. The following are the characteristics of research respondents:

Table 1.
Distribution Table Based on the Characteristics of Student Respondents (n=41)

Characteristics of Respondents	Intervention Group		Control Group	
	f	%	f	%
Age				
9 Years	0	0	1	2,4
10 Years	6	14,6	23	56,1
11 Years	31	75,6	16	39,0
12 Years	3	7,3	1	2,4
13 Years	1	2,4		
Gender 1) Male				
	19	46,3	18	43,9
2) Female	22	53,7	23	56,1
Class				
Class IV	17	41,5	24	58,5
Class V	24	58,5	17	41,5

Table 1 most respondents in both groups were 11 years old, female, and in grades IV and V of primary school.

Table 2.
Pre Test and Post Test Knowledge Level (n=41)

Group	Knowledge Level	Pre Test(f)	%	Post Test (f)	%
Intervention	Less	30	73,2	0	0
	Enough	8	19,5	4	9,8
	Good	3	7,3	37	90,2
Control	Less	31	75,6	26	63,4
	Enough	7	17,1	11	26,8

Table 2 the majority of respondents in the intervention group before being given disaster mitigation education using the Spin Challenge had a level of knowledge (73.2%). After the intervention, the knowledge level of the intervention group increased to good (90.2%). In the control group before, education was carried out using booklets, the level of knowledge was less (75.6%) and after the intervention, the level of knowledge decreased by (12.2%).

Table 3.
Wilcoxon Test Results Before and After Spin Challenge Game in Intervention Group (n=41)

Category	f	%	Mean Rank	Sum of Rank	Z	P Value
Post test > pre test	41	50	21.00	861,00	-5,584	0,000

Table 3 A significance value of 0.000 (p value <0.05) was found in the intervention group, indicating that the Spin Challenge educational game had an effect on the disaster mitigation knowledge of elementary school students in coastal Bantul.

Table 4.
Wilcoxon test results before and after being given pdf booklet in the control group (n=41)

Category	f	%	Mean Rank	Sum Of Rank	Z	P Value
Post test < Pre test	8	19,5	5,50	44,00		
Post test > Pre test	5	12,2	940	47,00	-0,105	0,916
Post test = Pre test	28	68,3				

Table 4 a significance value of 0.916 (p value <0.05) was found, indicating that there was no significant change in the knowledge level in the control group after the intervention.

Table 5.
Mann-Whitney Test Results Between the Intervention Group and the Control Group (n=41)

Category	Mean Rank	Sum of Rank	Z	P Value
Intervention	56,54	2318,00	-5,761	0,000
Control	26,46	1085,00		

Table 5 a significance value of 0.000 was found (p value < 0.05), which shows that the Spin Challenge educational game has an effect on disaster mitigation knowledge. Based on the post-test results of the intervention group, there was a significant increase in the level of knowledge of respondents by 90.2%. The control group experienced a significant increase in the level of knowledge of respondents by 12.2%, but the majority of respondents still did not experience an increase in their level of knowledge.

DISCUSSION

This research is in line with research conducted (Keniten, 2018) that education using game methods can increase knowledge by 51.4% in children. According to Pundasah (2021), the success of information absorption during learning is 10% from reading, 20% listening, 30%

seeing, 50% seeing and hearing processes, 70% taking actions, and 90% through practice or application of learning materials. Based on this theory, the educational game Spin Challenge has components that can increase the success of information absorption. The components contained in the Spin Challenge educational game are learning videos, practice questions, and challenges in each round that must be completed so that respondents are invited to seem as if they are facing a picture of a real case.

Knowledge is important in shaping the actions of an individual. The factors that affect a person's knowledge basically consist of internal and external factors. Internal factors that affect knowledge include interests and experiences, while external factors include education, environment, and information. Studies show that external factors have a significant influence on a person's knowledge. The situation that has occurred in the last three years, the COVID-19 pandemic, is one of these external factors. Factors of circumstances or environmental situations that occur are the reason why the knowledge of Bantul coastal elementary school students about disaster mitigation is mostly low before being given education. Pamela (2021) said that the majority of elementary school students in Indonesia have a low level of knowledge related to disaster mitigation, which is 41.68%. According to Octaviana &; Ramadhani (2021) knowledge is the result of an activity carried out.

Education about disaster mitigation needs to be done, this is related to the number of schools at risk of natural disasters, namely as many as 62,687 schools in Indonesia exposed to the risk of natural disasters. Children are a vulnerable group, so schools can help provide protection and knowledge as well as improve skills in dealing with a disaster. According to Tiaracindy &; Desriyeni (2018), learning carried out by modifying learning media into something interesting, such as spin challenges, can be expected to increase children's knowledge and facilitate their in absorbing information.

CONCLUSION

Both the intervention and control groups had a majority of female respondents, with ages ranging from 9 to 13 years. Based on class, respondents were students in grades IV and V of elementary school. Most elementary school students in the coastal areas of Bantul Regency do not understand disaster mitigation before they are taught using spin challenge media. The level of knowledge of disaster mitigation among elementary school students in coastal Bantul Regency before education using booklet media was mostly lacking. Elementary school students in coastal Bantul Regency who are given education through booklets have low knowledge of disaster mitigation, although the average has increased.

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