

Development of Comic-Based DISABO (Disaster Smart Book) for Elementary School Students

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Abstract

Data from the Regional Disaster Management Agency (BPDB) (2015) reports that Brebes Regency has several areas prone to flooding and landslides. Disaster problems are not the full responsibility of BNPB, but the responsibility of regional governments and related agencies. One of the efforts that can be made by the school to support disaster mitigation is to actively participate in organizing disaster education. The purpose of this research is to develop disaster education smart pocket book media for fifth grade students. The type of this research is Research and Development (R&D) research. The development model used is 4D from Thiagarajan (1974). The sample technique used is purposive sampling. Data collection techniques using interviews, questionnaires and tests. Data analysis using descriptive statistics. The results of the study were (1) DISABO media was developed based on a preliminary study not yet available media that packs comics and disaster education. (2) DISABO is feasible and valid to use based on the results of media validation, materials and student responses in very good categories

Keywords : Development, DISABO, Comics, Students, Elementary School

1. Introduction

Data on natural disasters such as floods and landslides based on research reports from the Regional Research Council of Central Java Province and the National Disaster Management Agency (BNPB) state that Central Java Province is vulnerable to floods, landslides, abrasion, earthquakes, droughts, volcanic eruptions, and volcanic eruptions. pickaxe. The most frequent natural disasters in Central Java Province were landslides (591 incidents), tornadoes (570 incidents), and floods (505 incidents). Brebes Regency has several areas prone to flooding and landslides. For flooding, it occurred in the Brebes pantura region starting from Losari District to Brebes District. Even the flood disaster becomes a subscription every year during the rainy season. Meanwhile, areas prone to landslides and ground movement include Salem District, Bantar Kawung District, Bumiayu District, Paguyangan District, Sirampog District, and Tonjong District. Two sub-districts that often experience landslides are Salem sub-district and Bantarkawung sub-district. Therefore, disaster issues are not the full responsibility of BNPB, but the responsibility of regional governments and related agencies.

One of the efforts that can be made by the school to support disaster mitigation is active participation in organizing disaster education. However, the implementation of disaster education in elementary schools in Brebes Regency found many obstacles. One of them is the lack of curriculum integration in Elementary Schools (SD) and the availability of media to implement this. The problem in this research is how to produce disaster education media that can improve disaster literacy of elementary school students. The specific objective of this research is to produce a product in the form of a comic-based Disaster Smart Book (DISABO) to improve disaster literacy for elementary school students who have gone through the development and testing stages in order to obtain a valid product.

The media used to carry out disaster education are of various types. Arifianti's research results

(2011) books are used as a resource to prepare children for disaster learning from an early age. Febriani and Lakoro (2013) concluded that educational animation using macromedia flash software about disasters packed with adventure stories and disaster simulations not only provides information but is also fun and more interesting for children. The results of research by Adiyoso and Kanegae (2013) concluded that the effect of schools adopting curriculum-based disaster issues on school children related to disaster risk reduction is effective in increasing disaster knowledge, increasing the level of risk perception, individual and school preparedness. Honesty& Djali (2012) Based on the point of view of the integration of knowledge (transdisciplinarity), the disaster curriculum can be integrated into several school subject matter that are strongly related to disaster. DISABO is a new and different media for disaster education. DISABO contains information about disaster education which contains information about the types of disasters and how to prevent and save if a disaster occurs. DISABO is integrated with subject matter, uses a storyline, and is packaged using cartoon characterizations complemented by conversations/using comic techniques. DISABO packs disaster information that occurred in Indonesia using different story themes. DISABO is one of the different disaster education media. Therefore,

Disaster Education Media Regulation number 4 of 2008 issued by the National Disaster Management Agency (BNPB) explains that Indonesia is a country with a very high and varied hazard potential in the form of natural disasters, man-made disasters or complex emergencies. Some of these potentials include earthquakes, tsunamis, volcanic eruptions, floods, landslides, droughts, land and forest fires, urban and settlement fires, storms, disease outbreaks, technological failures and social conflicts. The importance of disaster education in elementary schools through outreach activities and increasing community awareness needs to be considered by the school. According to BNPB regulation Number 4 of 2008 it is explained that the efforts or activities in the context of prevention and mitigation are carried out, aims to avoid disasters and reduce the risks posed by disasters. Mitigation measures seen from their nature can be classified into 2 (two) parts, namely passive mitigation and active mitigation. The results of the research by Adiyoso and Kanegae (2013) concluded that the effect of schools adopting curriculum-based disaster issues on school children related to disaster risk reduction is effective in increasing disaster knowledge, increasing the level of risk perception, individual and school preparedness. Important findings are that the results of implementing curriculum-based disaster issues in schools can awaken school children's alert attitude even though it is limited to visits to educational facilities and emergency facilities. The media used in disaster education are of various types. Books are one of the printed media that are commonly used by elementary school students. Pocket books are used as a tool that conveys information about subject matter and others that are one-way so that they can develop students' potential to become independent learners (Sulistiyani, Jamzuri, Rahardjo, 2013).

Based on the shape of the comic is a form of book that can be used as an effective and efficient messenger in children's education, Waluyanto (2005) states that comics are visual communication media, comics can be applied as educational aids and are able to convey information effectively and efficiently. Bolton-Gary (2012) states that the emotional (humor) and visual (images and text) elements of comics can help improve students' understanding of conceptual material. Zain, Parmin, Sumarni (2013) comic modules can help students understand concepts and improve learning outcomes. The research results of Melisa, Swandi, Raditya (2012) concluded that Indonesian children need to be given information about a culture of self-protection against disasters. You do this by providing interesting information for them and easily understood and understood by children. This information can be packaged in the form of educational games. Arifianti (2011) implements education as one of the media, namely books that are used as a resource to prepare children for disaster learning from an early age. This book is only one of the media, there are many

other innovative media that can be developed to complement disaster learning activities. Febriani and Laksono (2013) concluded that educational animations using macromedia flash software about disasters packed with adventure stories and disaster simulations not only provide information but are also fun and more interesting for children. In addition to introducing the characteristics of a disaster, children can also find out about the signs of a disaster,

In this research, the things that distinguish DISABO from the media used for disaster education are that DISABO is integrated with subject matter, uses a storyline, and is packaged using cartoon characterizations complete with conversation/using comic techniques. In addition, DISABO contains three pieces of smart information, namely types of disasters, ways to prevent disasters from occurring, and rescue efforts in the event of a disaster. DISABO packs disaster information that occurred in Indonesia. The three pieces of information are packaged using story themes related to the type of disaster.

Comics are one of the right media to help students understand the subject matter. According to Daryanto (2013: 128) the advantages of comics as learning media, contain strong visual elements and stories. Expressions that are visualized make the reader emotionally involved, making the reader compelled to read it to the end. Agustiningih (2015) the quality of thematic comic design based on environmental education with the macromediaflash application for the early elementary school classes that was developed is good and meets eligibility as a learning tool in the early elementary school classes and effectively supports learning. Pramana (2015) concluded that comic media as a science teaching material can improve the learning achievement of fourth grade students at SDN Pendowoharjo Sleman as evidenced by an increase in average scores and most of them have achieved the completeness criteria. Rahmawati (2015) concluded that comic media is appropriate for use as a learning medium because it can improve Indonesian language skills in Indonesian language classes for basic foreign speakers. Haryadi & Irawan (2016) visual communication media in the form of static media such as comics and illustrated stories can be adapted to support storytelling activities in accordance with the message to be conveyed. Rahmawati (2012) said that social story strategies accurately describe comic situations and conversations that purely use visual symbols,

Characteristics Elementary school students in learning activities need concrete objects, information that is complete and close to everyday life. Rusman (2010: 251-252) these three things are as follows: first, concrete meaning the learning process moves from concrete things with an emphasis on using the environment as a learning resource. Second, integrative means to view something learned as a whole and integrated. SD/MI-aged children have not been able to sort out concepts from various disciplines, this illustrates a deductive way of thinking, the integration of concepts is not sorted out in various disciplines, but linked into meaningful learning experiences (meaningful learning). Third, hierarkhis means to develop gradually from simple things to more complex things. Therefore, in this case issues such as logical sequence, interrelationships between subject matter, and the broad scope of subject matter become important and really need to be considered (Madjid, 2014: 8).

Relating to the problem of research regarding. Underlies the goal of making comic-based DISABO (Disaster Smart Book) development media for elementary school students. Based on its contents, DISABO contains information about disaster education which contains information about the types of disasters and how to prevent and rescue them if a disaster occurs. DISABO is integrated with subject matter, uses a storyline, and is packaged using cartoon characterizations complemented by conversations/using comic techniques. DISABO packs disaster information that occurred in Indonesia using different story themes.

2. Research Methods

2.1 Types of research

This research is a type of quantitative research using a Research and Development (R&D) approach. The product developed in this research is DISABO media. The development model used in this study refers to the 4D development model proposed by Thiagarajan (1974) which consists of define, design, development, and dissemination.

2.2 Time and Place of Research

This research was conducted from April 30 to October 20 2020. The location of this research was at an elementary school in the South Brebes area.

2.3 Population and Sample

The population in this study were all 5th grade students at SD Bantarkawung district. The sampling technique used was purposive sampling. Purposive sampling is a sampling technique with certain considerations. The sample in this study were fifth grade students at SD N Cikuning 03.

2.4 Research procedure

The research steps carried out in this study refer to the development steps in the 4D model proposed by Thiagarajan (1974). The 4D design consists of 4 stages, namely defining, designing, developing and disseminating. This research was carried out: define stage activities. The define stage conducts a needs study analysis in the form of learning observation activities and interviews with teachers and students. Next, the design stage is to design a product in the form of DISABO. DISABO which was compiled using comic techniques and disaster education. Then, the development stage is the activity of making the design into a product and testing the validity of the product repeatedly until a product is produced according to the specifications set. This stage includes (a) this validation is carried out by competent media experts, material experts and teachers to provide assessments and suggestions on the product; (b) small or limited group trials; (c) limited trials were conducted on 8 fifth grade elementary school students as test subjects, each of which represented abilities at various levels. (d) Field trials were conducted in the experimental class. At this stage using the nonequivalent group design experimental design. The final stage in this research is Dissemination. The dissemination stage is the activity of disseminating products that have been tested for the benefit of others. This stage is the stage of using the tools that have been developed on a wider scale, for example in other classes, in other schools and with different teachers.

2.5 Data, Instruments and Data Collection Techniques

The instruments used to collect data in this study were questionnaires for media and student validation to assess the products developed, interview guidelines for teachers and students to conduct preliminary studies, and pretest and posttest questions were used to measure learning outcomes.

2.6 Data analysis technique

The data analysis technique used is quantitative descriptive analysis, namely the quantitative data obtained through a validation questionnaire is converted to qualitative data. The change in the five-scale score refers to the following categorization.

Table. 1. Categorization of scores on a scale of five

No	Score Range	Score	Category
1	$X > X_i + 1.8 S_{bi}$	>4,2	Very good
2	$X_i + 0.6 S_{bi} < X \leq M_i + 1.8 S_{bi}$	>3.4 – 4.2	Good
3	$X_i - 0.6 S_{bi} < X \leq M_i + 0.6 S_{bi}$	>2.6 – 3.4	Enough
4	$X_i - 1.8 S_{bi} < X \leq M_i - 0.6 S_{bi}$	>1.8 – 2.6	Not enough
5	$X \leq X_i - 1.8 S_{bi}$	≤ 1.8	Very less

Source: Widoyoko (2016:238)

Information :

X = actual score (score achieved)

X_i = average ideal score = $(1/2)$ (ideal highest score + ideal lowest score)

S_{bi} = deviation ideal score standard

= $(1/6)$ (ideal highest score – ideal lowest score)

3. Results And Discussion

3.1 Results

The research data that has been obtained is at the define and design stage and the development stage. The results of the study are as follows.

1. Define stage

The research data that has been obtained at the define and design stage. In the define stage, a preliminary study was carried out by giving a questionnaire to teachers through the Google Form service. Disaster education is very important to be given to students, especially students whose homes are prone to disasters.

1. The majority of research respondent teachers have not received training on disaster education models.
2. The majority of teachers have not prepared learning media for disaster education.
3. Disaster education can be integrated in elementary schools, because learning is carried out thematically.
4. Learning media are needed that can increase students' motivation to dig up information about disaster education.
5. Comics are thought to have an attraction for students so that curiosity in reading books is increasing.
6. The southern part of Brebes has a great potential for landslides and floods because the geographical area is in the form of mountain slopes and the lowlands are flowed by the "pedes" and "pemali" rivers which are a threat if there is heavy rain.

Based on the results of the preliminary study, the researcher concluded that it is important for disaster media to review information about landslides and floods. This is in line with BNPB Central Java data for 2019 that for flooding, it occurred in the Brebes pantura area starting from Losari District to Brebes District. Even the flood disaster becomes a subscription every year during the rainy season. Meanwhile, areas prone to landslides and ground movement include Salem District, Bantar Kawung District, Bumiayu District, Paguyangan District, Sirampog District, and Tonjong District. Two sub-districts that often experience landslides are Salem sub-district and Bantarkawung sub-district. Therefore, comic-based disaster education media was developed. Comics are one of the right media to help students understand the subject matter. According to Daryanto (2013: 128) the advantages of comics as learning media, contain strong visual elements and stories. Expressions that are visualized make the reader emotionally involved, making the reader compelled to read it to the end. Agustiningih (2015) the quality of thematic ecomic design based on environmental education with the macromediaflash application for the early elementary school classes developed is good and meets eligibility as a learning tool in the early elementary school classes and effectively supports learning. Pramana (2015) concluded that comic media as science teaching material can improve the learning achievement of fourth grade students at SDN Pendowoharjo Sleman as evidenced by an increase in average scores and most of them have achieved the completeness criteria. Rahmawati (2015) concluded that comic media is appropriate for use as a learning medium because it can improve Indonesian language skills in Indonesian language classes for basic foreign speakers. Haryadi & Irawan (2016) visual communication media in the form of static media such as comics and illustrated stories can be adapted to support storytelling activities in accordance with the message to be conveyed. Rahmawati (2012) said that social story strategies accurately describe comic situations and conversations that purely use visual symbols,

2. Design Stage (designing)

The design stage consists of two stages. Stages of compiling story boards and compiling products into comics. The story board was prepared based on the results of an analysis of material learned in elementary

schools with information on disaster education provided by BNPB.

a. Design Story Boards

Based on the results of the preliminary study used as the basis for designing the product. The results of compiling the story board are as follows.

1. cover
2. Instructions for use
3. Characterization
4. List of contents
5. Fill DISABO

a. Theme 1 Landslide Disaster

Settings

After school on Saturday, Adi and Budi, Nina and Dina get together and talk about Sunday plans.

Budi: Friends, what if we go jogging on Sunday?

Adi: Good idea, Budi. We need exercise to maintain health.

Diana: OK. I agree. Tomorrow meet at my house at 7 am.

Nina: Okay dian. Budi and Adi don't forget to bring water.

Settings

The next day. On Sunday, Adi and Budi, Nina and Dina go for a walk. In the middle of the slope area, they took a break to drink. Suddenly it rained heavily, they took shelter under the slope.

Dodi: I hope it doesn't rain too hard, Budi.

Budi: Yes Dod.

Dina: Guys I'm scared..The rain is getting heavier. Are we safe down the slopes in this downpour?

Nina: Yes Dina. I'm scared too. We must be careful.

some of the boulders on the slopes began to slide.

setiing: Farmers drive cars that pass toward the children. Come on kids get in the car, not down the dangerous slope.

setting The children immediately got into the car.

setting:Up in the car.

Farmer: Why are you under the slope when it's raining heavily?

Budi : we are exercising Pa. Suddenly it rained heavily.

Diana: Yes, Papa. We took shelter because it was raining heavily and we didn't have an umbrella with us.

Farmer: Children, do you remember? Landslides are events where the constituent parts of the soil fall down the slopes of the hills. Landslides often occur when it rains heavily. Remember, children.

Important information:

1. When it rains heavily and afterwards, don't cross the road that is close to the cliff.
2. If your house is under or near a cliff when it rains for more than 30 minutes, immediately run out of the house.
3. If there is a landslide and you are trapped in the house, immediately shout for help from others.
4. If there is a landslide and it is buried in the ground, make a hole so that it can still get enough oxygen.

That's important information that you have to remember.

Budi: Thank you Pak Farmer. Now we are getting information about landslide rescue.

Dodi: Yes, Mr. Farmer. Thank you for the help you gave.

Farmer: you're welcome. Where do I take the children home?

Dina: our house is not far from that field, sir.

Settings

Arrived at home. Dina then ran to her parents and cried.

Dina's mother: Why dina, what happened.

Budi : We were walking, in the middle of the road near the cliff suddenly it rained heavily.

Dodi : Yes. Instantly we screamed because the slope where we took shelter from the rain suddenly fell near us.

Farmers: Dina's mother and father. I was passing when it was raining, I heard a child crying under the cliff. I immediately got into the car.

Mr. Dina : Thank you Farmer. The children said goodbye to exercise. I was also worried, because suddenly it was raining heavily.

Farmer: You're welcome, ladies and gentlemen. I said goodbye before continuing my journey. Be careful, kids

Children: thank you farmer.

b. Theme 2 Flood Disaster

Settings:

After school it rained heavily, Dina, Budi, Doni and Nina walked using an umbrella to go to their house via a bridge under which there was a large river.

Budi: Friends, look at the swift river current. How about we go down and play paper boats?

Dodi: Come on Budi, I also want to play paper boats when the river is big, it's really fun.

Nina: I also want to play, but isn't it dangerous, Budi?

Dina: Nina's right, let's just go home Nin.

Settings:

Dodi and Budi went down under the bridge and started building a boat.

While nia and dina walk through the bridge.

Budi slipped when releasing the boat, and was held by Dodi's hand. While dodi holding on to a tree.

Budi asked for help and the voice was heard by Nina and Dina.

Settings:

Nina : Look dina, Budi needs help. Come on dina scream for help.

Dina: Please help.. Someone was dragged by the waves,..

Setiing

3 adults came close to Dina and Nina. one of the adults asked.

Adult: it's raining heavily, why are you asking for help?

Nina: Look under the bridge Pa. Our friends need help. Please save our friend, sir.

Settings

The adults looked down at the dodi bridge and Budi had been swept away by the current. The adults throw themselves into the river and swim to save dodi and budi. Budi and dodi are safe. Nina and Dina also went downstairs.

Adult 1: Why are you playing in the river when it's raining heavily? Don't you see that when it rains heavily, the flow of water in the river gets bigger and can cause it to wash away?

Budi: Sorry Uncle. I was the one who asked to play in the river when it was raining heavily.

Dodi: sorry uncle. We will not repeat this wrongdoing.

Nina: I gave you uncle's advice, not to play near the river when it's raining hard!

Adult 2: thank God it's safe. God still helps us. Flood is an event that occurs when an excessive flow of water

submerges the land. Floods occur when it rains for a long time. Remember, children, this important information.

1. When it rains heavily, the water flow gets bigger and faster, don't play near the river because it's dangerous (pictured).
2. When it rains heavily accompanied by lightning, do not turn on electronic devices such as cellphones, TVs, and others.
3. When a flood occurs at home, immediately turn off the control of the power source.
4. When there is a flood, do not play in the river.
5. When a flood occurs, immediately seek higher ground.
6. When a flood occurs, avoid crossing the electrical circuits near the road.
7. When there is a flood, look for objects that are large and can float in the water.

Settings

Adult 3: Where are you guys going? Let us just take it because of the heavy rain conditions.

Nina: our house is not far from the bridge, Uncle. thank you Uncle

Settings

All the children got into the car and the adults escorted them.

Arrive at Budi's house. Budi's mother cried, and asked.

Budi's mother: Dodi. What happened to Budi?

Dodi: Budi was almost carried away by the swift waters of the river, Auntie, when we were playing boats in the river. Thank God, this uncle helped us.

One adult: Mr and Mrs Dodi. When we crossed the bridge, Nina and Dina were crying for help because Dodi and Budi were in danger. Thank God everything has passed safely. We say goodbye first, father and mother.

Mr. Budi: thank you for your kindness. We will advise and pay more attention to our children to be more careful and take care of themselves.

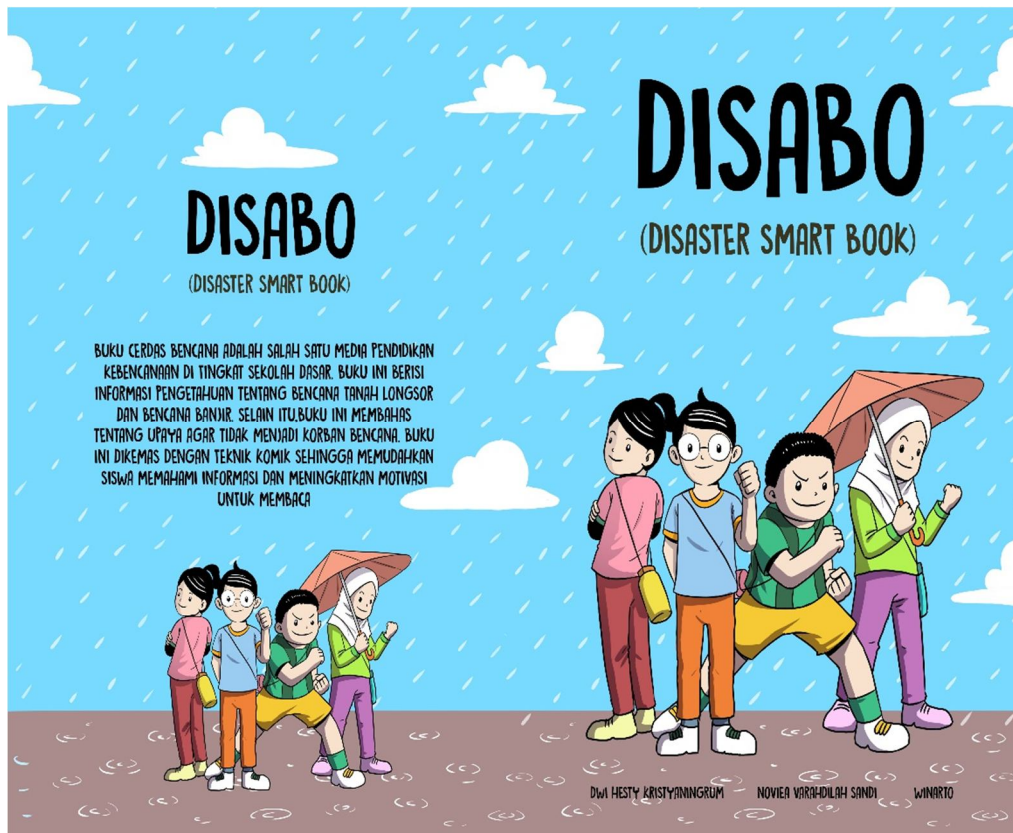
Adult: You're welcome sir. We say goodbye to continue the journey. Assalamualaikum.

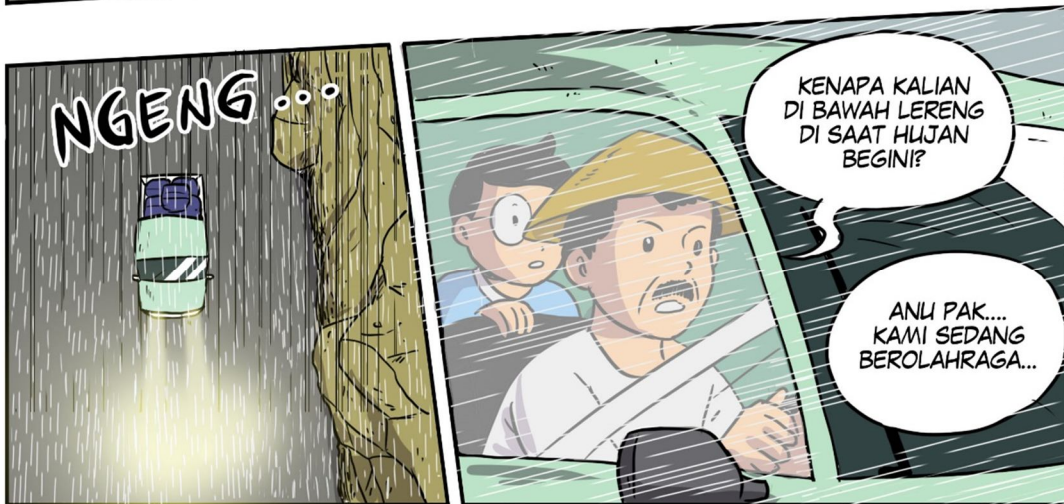
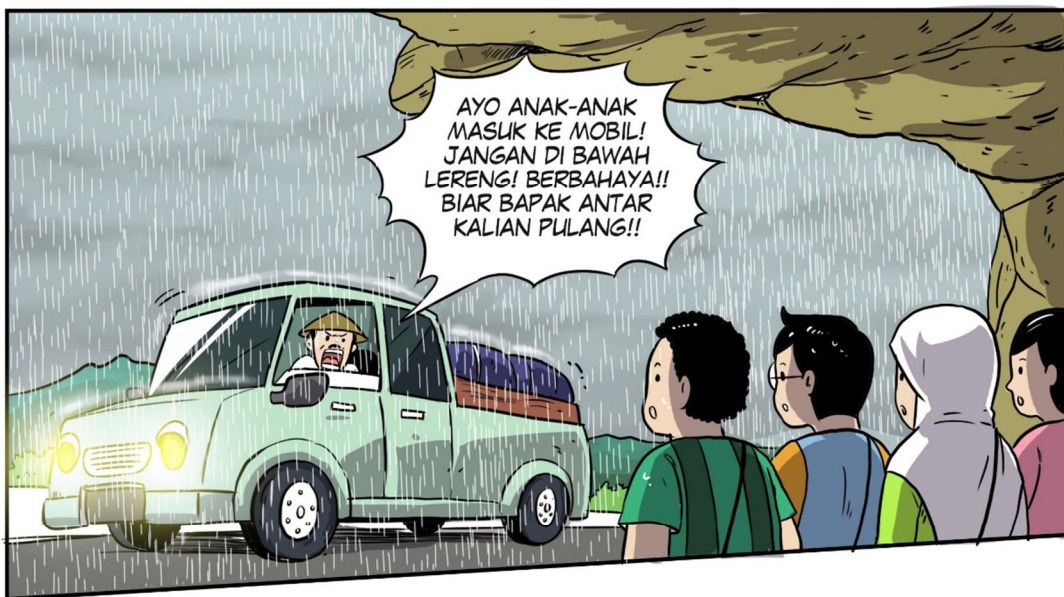
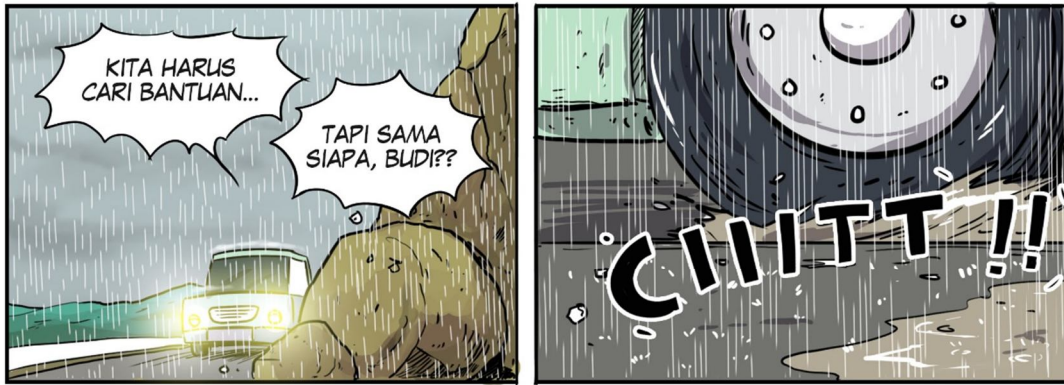
C. Evaluation

To remember material about landslides and floods and the steps to save them. Answer the questions below.

1. Landslides are...
2. Floods are...
3. Mention at least 3 self-rescue steps that must be taken to avoid landslides.
4. Mention at least 3 self-rescue steps that must be taken to avoid a flood event.
5. If there is a flood at Ani's house and Ani is trapped in the house. What should Ani do to survive the flood?
6. Burhan had a landslide and the house was buried due to the landslide. What should Burhan do to survive the landslide?

b. DISABO Product design stage





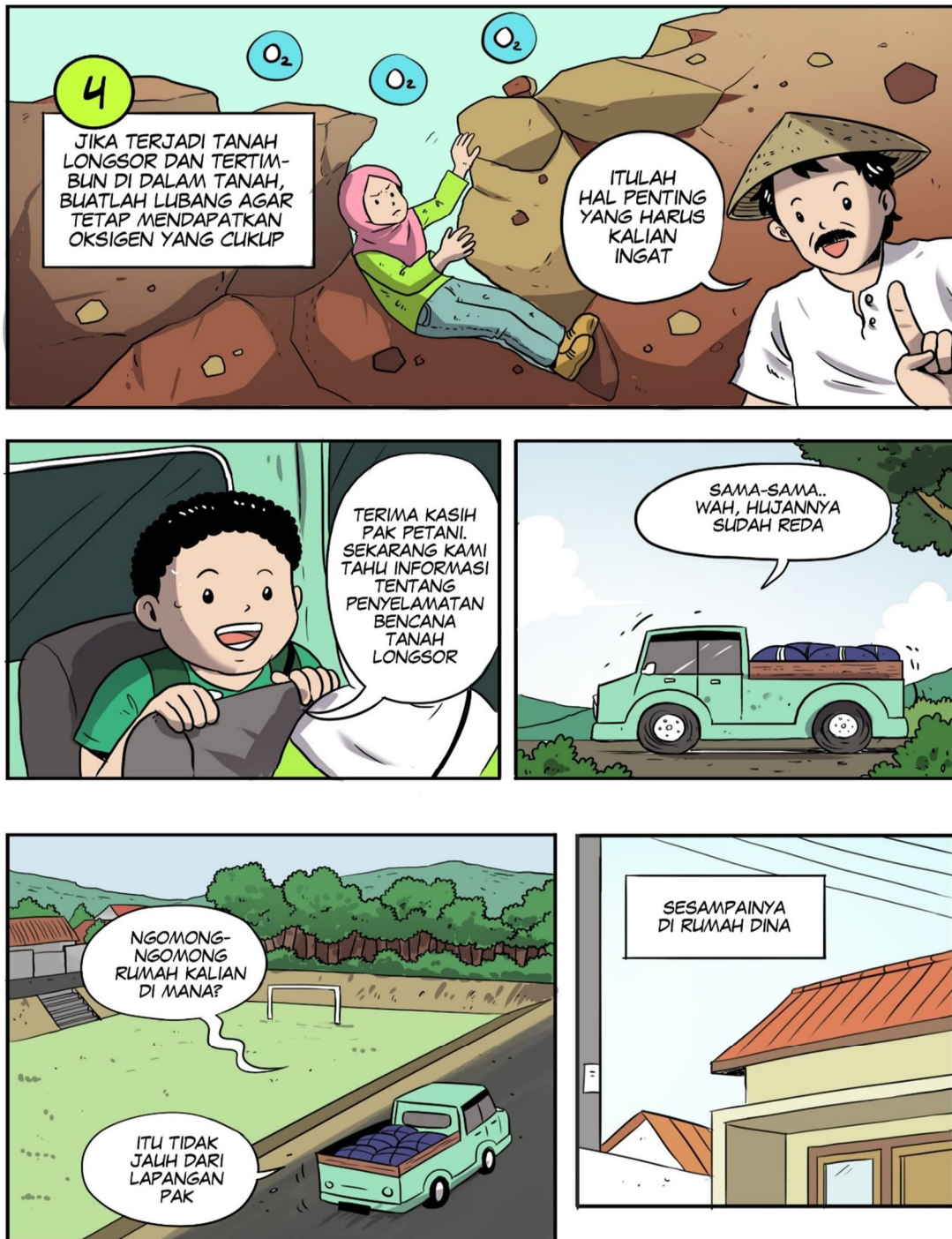


Figure 2. Example of DISABO Products

C. Product Validation

The results of the validation provided by the validator obtained information that the DISABO pocket book was suitable for use. The validator's assessment of the product being developed averages "A" with a very good predicate. The validator's assessment is presented in Table 1.

Table 1. Conversion of Validator Ratings

No	Validators	Average Product Rating	Score Intervals	Mark
1.	Learning Technology Expert Lecturer	3,8	$X > X_i + 1.5 S_{bi}$	A
2.	Science Lecturer	4,3	$X_i + S_{bi} < X < X_i + 1.5 S_{bi}$	A
3.	Elementary teacher 1	3,9	$X_i - 0.5 S_{bi} < X < X_i + 1.5 S_{bi}$	A
4.	Elementary teacher 2	4,2	$X_i - 1.5 S_{bi} < X < X_i - 0.5 S_{bi}$	A
5.	Peers	4,4	$X < X_i - 1.5 S_{bi}$	A

In addition to the assessment by the validator in the form of numbers, the validator provides an assessment in the form of suggestions for improving the product. The suggestions given by the validator are as follows:

1. Sentences used need to pay attention to EYD and student development.
2. Affirmation aspect of disaster rescue actions.
3. Need to be given an evaluation in DISABO.
4. Due to the pandemic, soft file access is provided for this product.
5. It should be noted that the writing in the comic content box is not composed of many words.

Product Implementation Test

The implementation of the DISABO product test in grade 5 SD in the Brebes area experienced problems. Due to the Covid 19 pandemic, elementary schools in Brebes from March 2020 to December 2020 were forced to study from home. Therefore, product implementation tests cannot be performed.

3.2 Discussion

The data obtained is based on research activities steps one to four. The preliminary study obtained information that it is important to develop comic-based learning media. The reason is the media DISABO is a new and different media for disaster education. DISABO contains information about disaster education which contains information about the types of disasters and how to prevent and save if a disaster occurs. DISABO is integrated with subject matter, uses a storyline, and is packaged using cartoon characterizations complemented by conversations/using comic techniques. DISABO packs disaster information that occurred in Indonesia using different story themes. DISABO is one of the different disaster education media. Therefore, this research needs to be conducted to support the implementation of disaster education in elementary schools. Another important consideration is that DISABO developed based on previous research on media for elementary school students that can improve student learning outcomes. Research result Febriani and Lakoro (2013) concluded that educational animation using macromedia flash software about disasters packed with adventure stories and disaster simulations not only provides information but is also fun and more interesting for children. Zain, Parmin, Sumarni (2013) comic modules can help students understand concepts and improve learning outcomes. Saputro (2016) concluded that the developed character-based comic media proved to be effective in increasing the character of discipline and responsibility of fourth grade students at SDN Pangen Gudang Purworejo. Rahmawati (2012) said that social story strategies accurately describe comic situations and conversations that purely use visual symbols, abstract conversational concepts and colors that indicate emotional content can improve students' understanding.

DISABO learning media has comic-based characteristics. The assessment of all validators concluded that DISABO was suitable for use by elementary school students. The comic element is an important aspect of the media because it is thought to increase students' interest. Comics have a major contribution in providing information that educates, entertains, as well as influences the essence of the function of communication (Maharsi, 2010: 10). According to Daryanto (2013: 128) the advantages of comics as learning media, contain strong visual elements and stories. Expressions that are visualized make the reader emotionally involved, making the reader compelled to read it to the end. Research conducted. Nugroho (2013) concluded that the developed science comics also proved to be effective in improving student learning outcomes. Wijati's research (2010) concluded that the developed

multimedia comics in mathematics learning can be used as an effective learning resource for elementary school students. The use of comics was chosen in this study as a strategy to increase students' learning motivation. The display of images in comics strengthens the information conveyed. Characteristics of elementary school students who learn more easily using media images to explain a concept, is a consideration for the reason for choosing comic techniques. Rahmawati (2012) said that social story strategies accurately describe comic situations and conversations that purely use visual symbols, abstract conversational concepts and colors that indicate emotional content can improve students' understanding. The display of images in comics strengthens the information conveyed. Characteristics of elementary school students who learn more easily using media images to explain a concept, is a consideration for the reason for choosing comic techniques. Rahmawati (2012) said that social story strategies accurately describe comic situations and conversations that purely use visual symbols, abstract conversational concepts and colors that indicate emotional content can improve students' understanding. The display of images in comics strengthens the information conveyed. Characteristics of elementary school students who learn more easily using media images to explain a concept, is a consideration for the reason for choosing comic techniques. Rahmawati (2012) said that social story strategies accurately describe comic situations and conversations that purely use visual symbols, abstract conversational concepts and colors that indicate emotional content can improve students' understanding.

The second characteristic of this medium The things that distinguish DISABO from the media used for disaster education are that DISABO is integrated with subject matter, uses a storyline, and is packaged using cartoon characterizations accompanied by conversations/using comic techniques. In addition, DISABO contains three pieces of smart information, namely types of disasters, ways to prevent disasters from occurring, and rescue efforts in the event of a disaster. DISABO packs disaster information that occurred in Indonesia. The three pieces of information are packaged using story themes related to the type of disaster. In this study, comics are used as a medium to package information. The existence of characterizations and short conversations accompanied by pictures is the reason for choosing cartoon media to package disaster information through a book.

It is concluded that the validator's assessment data for DISABO are very good for use in learning in elementary schools. According to him, the developed media fulfills aspects of disaster education and comic media which supports students to study the material holistically.

The results of the validator's assessment are as follows.

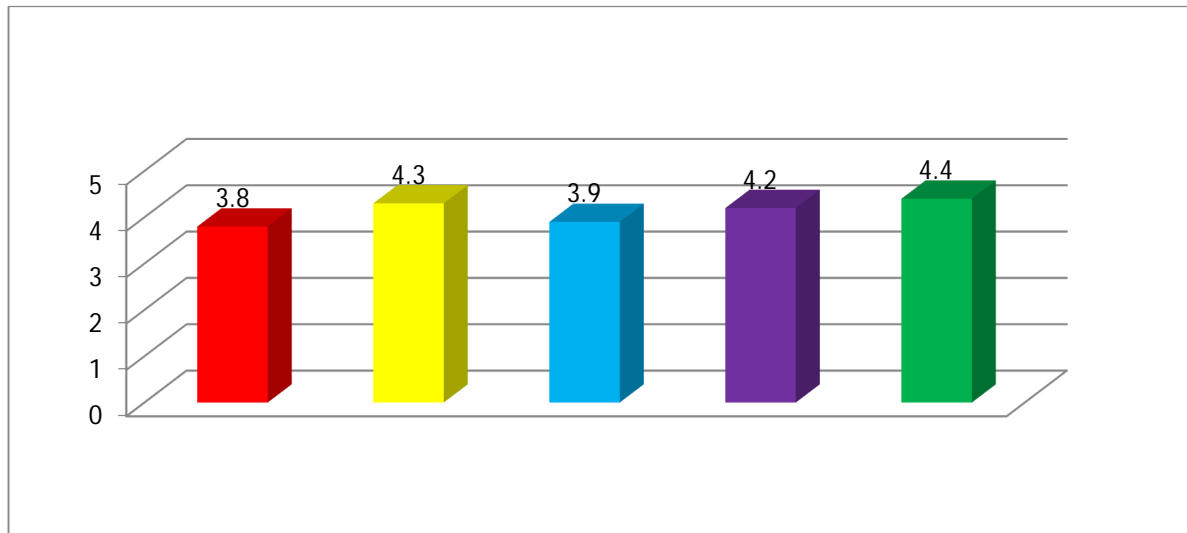


Figure 2. Validator Assessment

4. Conclusion

Based on the results of the research and discussion, it can be concluded that the DISABO integrated disaster education media was developed through the 4D stage which consisted of define, design, develop and dissemination, was feasible and valid for use in the field.

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