

## DEVELOPMENT OF HIRO CARD MEDIA IN MATHEMATICS LESSON MATERIAL MATERIAL IN ROMAN NUMBERS IN CLASS IV OF SD NEGERI SEMPU 2 SERANG CITY

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### ABSTRACT CT

This research aims to: 1) Find out the process of developing *Hiro Card learning media* in mathematics subjects, 2) Find out the feasibility of *Hiro Card learning media* in mathematics subjects. This research uses *Research and Development (R&D)* research using the 4D development model with stages, namely *define, design, development, desiminate* . This learning media goes through the stages of media validation testing, material validation testing, and product testing. The subjects of this research were 25 grade IV students at SD Negeri Sempu 2, Serang City. Based on the research results, it is known that the average media expert validation is 90 in the "very appropriate" category, material expert validation is 80 in the "very appropriate" category, student responses are 92% in the "very good" category. " category. Thus it can be concluded that the *Hiro Card learning media* is declared suitable for use as a learning media, especially in mathematics subjects

### Keywords \_

Instructional Media

*Hiro Card* Media

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## INTRODUCTION

Education is something very important in human life. Through the education process, humans can gain a lot of knowledge and skills for their future survival. Many ways taken to achieve education . Because of education , people obtain Lots knowledge . With exists education can lift level life man . At level education there is a number of field science . In among them There is field science knowledge social (IPS), knowledge nature (science), language , arts and culture , education nationalities , sports , and fields science mathematics . Where is the lesson mathematics This is eye lessons that have role important at the level education . Mathematics is eye lessons that have role important in fulfil need participant educate That Alone . Because Mathematics Alone own objective Where student invited For think critical with usual activities \_ We know with count . For objective mathematics at school base Alone that is aims to ensure participants educate understand related draft mathematics until to stage developing reasoning from mathematics That Alone.

Learning \_ mathematics own role important in the field education especially at level school base . At school base participant educate tend No like eye lesson mathematics because lesson This tends to be very difficult For participant education at the level school base . With exists eye lesson mathematics at school sometimes make participant educate to be lazy to Study Because they think that mathematics That difficult and one eye lessons that don't pleasant so give rise to level laziness in participants educate For Study about mathematics That Alone . Level \_ ability mathematics participant students in Indonesia still is on point low especially in finish the questions considered participant educate difficult , so need held more improvements \_ Good in implementation activity learning throughout \_ level education in Indonesia, in particular level school basic , where material his learning Still many are of a nature abstract . Where with incident like this is very necessary Skills from the teacher to get it increase will Study participant educate especially in field lesson mathematics .

Based on this, there are still teachers who do not use media during the learning process, where it can be seen that there are still teachers who only rely on the lecture method and there are indeed teachers who do not have skills in creating visual or digital media, which is usually caused by deficiencies. their updates on technological developments. One of them is the media that will used in research This is *Hiro Card* media , where is *Hiro Card* media This including into one \_ types of learning media that can be done served in digital form or conventional . By Specifically, *the Hiro Card* media will be researcher use is in form conventional ( real ), with shaped media design like game snake stairs and have various type picture card in each box the game . *Hiro Card* Media This can used by all student Good in activity learning individual or group .

## RESEARCH METHODS

### Type study

Method The research used to fulfill the objectives of this research uses research and development methods or what is usually called *Research and Development* (R&D). The reason for using this research method is because it is considered relevant for solving problems related to education. *The Research and Development* (R&D) method is a method that is considered effective for producing certain products, and testing the effectiveness of these products. To perfect a product that is in accordance with the references and criteria of

the product being made so as to produce a new product through several stages, validation and trials. Researchers conduct research first to collect the required amount of data. Next, system development is carried out and testing of the products made.

This research aims to produce a product in the form of visual learning media that is adequate in the learning process. The resulting learning products include subject matter and moral messages in shaping students' character through the development of *Hiro Card media* as a learning medium for Roman numerals in class IV elementary school.

### **Time and place Study**

This research was carried out when schools were allowed to carry out re-learning activities at school, to be precise starting from May to July 2022, in the time period described by the researcher when analyzing the content of Mathematics lessons in grade 4 student books, thus the aspects- The aspects that the researcher succeeded in analyzing in the research that took place between May and July 2022, in the period before and after this research was carried out, were not of concern or part of the researcher's research so it is very possible that changes could occur that were not stated in this research.

### **Target / Subject Study**

The target subjects of this research were class IV students at Sempu 2 Elementary School, Serang City. To research a product in the form of learning media that suits your needs as the right place to help the learning process. The resulting learning media product includes subject matter to shape students' character through the *Hiro Card learning media* as a learning medium for Mathematics subjects in class IV elementary school.

### **Procedure study**

#### *1. Define*

At this stage, information is collected regarding the need for learning media. In the context of *Hiro Card media* development, this definition stage is carried out by means of curriculum analysis, needs analysis and material analysis.

#### *2. Design*

*Hiro Card media* was designed. The activity carried out at this stage is designing the initial *Hiro Card media product*. Preparing the initial *Hiro Card design* went through several stages, namely: creating a material draft, designing the cover, layout and

question sheets, as well as changing the appearance of the media in the form of a banner (print).

### 3. *Development*

At this stage, the initial *Hiro Card media product* will be tested and evaluated by experts consisting of material validation and media validation which is appropriate to the field before being tested in the field. The researchers will use the suggestions given by the validators to improve the product (product revision). This stage will be completed when the *Hiro Card media* developed has been declared feasible and can be tested in the field.

### 4. *Dissemination*

*the Hiro Card media* was disseminated , which had previously been tested by experts for use (field trials) by class IV students at SDN Sempu 2 Serang City because class IV students for the 2021/2022 academic year had already passed the material on Roman numbers. In the field trial, students will be asked to provide responses to the *Hiro Card media* that has been used on the student response questionnaire sheet.

## **Data collection technique**

The data collected in this research was by observing the target school and distributing questionnaires directly to students so they could find out the target. Interview techniques were used as a reference to direct and facilitate researchers in collecting data so that it was in accordance with the research objectives effectively and efficiently. 1) interview structured , interviews conducted \_ with Use the existing list of questions made based on desired goal \_ is known in study ; and 2) interviews No structured , interviews conducted \_ researcher No bound by a list of mandatory questions asked to subject research (Hamzah, 2020: 106) . This research uses structured interviews. Then a questionnaire was given to students in the form of statements which were considered as students' responses to the media. Questionnaire is technique data collection , where participants or respondents fill in question or statement Then after filled with complete returned to researcher ( Sugiyono , 2015: 216) . After product development has been completed, the next stage is to carry out a feasibility test on the product through material validation and media validation.

## Data analysis technique

Data analysis techniques were obtained through instrument evaluation during testing and analysis \_ use statistics descriptive qualitative , that is statistics used \_ For analyze data with method describes the data that has been collected as exists without mean make applicable conclusions \_ For general or generalization . The steps in analyzing the data are as follows:

### 1. Expert Test Assessment Sheet

Change the quantitative assessment to qualitative in accordance with the scoring rules, calculate the average value of the value of each aspect given by the expert into a percentage using a separate formula, calculate the average value of the expert against the Hiro Card media assessment, and change *the* results obtained in percentage form and then converted into qualitative form according to the rules outlined.

### 2. Analysis of Student Response Questionnaire Sheets

The student response questionnaire sheet uses a user response questionnaire to find out student responses regarding the *Hiro Card media* being developed. In the questionnaire, student responses consist of positive and negative statements with a score (*Hamzah, 2020:100*).

## RESEARCH RESULTS AND DISCUSSION

### Results

To find out the effectiveness of using *Hiro Card learning media* as a learning media in the mathematics learning process, this can be seen in the table below:

Table 1. Ability Scores Student in Media Use

No.	Aspect Evaluation	Score
1.	cognitive	88
2.	Affective	90

Research and development This implemented in class I V SD Negeri Sempu 2 Serang City Year Teachings 2022/2023. Study This consists from a number of stages , including namely : stage define or set product that will developed by initiated researchers \_ with activity analysis , stage design and design product *Hiro Card* . stage develop and create product the next visual media Validity test is carried out product in a way repeated in

accordance with specifications that have been set , and stage dissemination or disseminate product *Hiro Card* as well as testing was carried out product . *Hiro Card* made use a number of application namely : *Microsoft Word* , and *Corel Draw* . As for the results product end in study This form visual media or print media . Structure *Hiro Card* This covers cover and content section. In the content section there are cartoon images of heroes designed in various colors, and there are also numbers in the form of Roman numerals.

Research result *Hiro Card* visual media This held in accordance with procedure development carried out by Thiagarajan (1974) , namely the 4D research and development model . Steps \_ the is *define* , *design* , *development* and *dissemination* ( Sugiyono , 2015 : 37–38 ) . \_ \_ \_ Following is explanation from every stages carried out in research and development This .

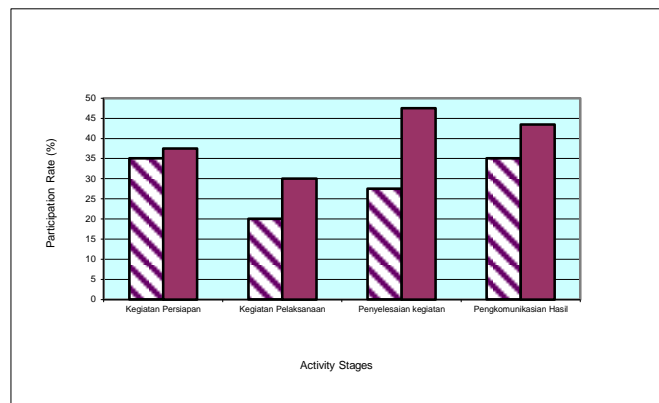


Figure 1 Level of Participation Student in Activity Media Use

## Discussion

In study This is the product being developed is Conventional learning media is *Hiro Card media* in Mathematics subject matter on Roman numbers . Study This done for approximately 3 months . Based on initial research, it was found that teachers only used textbooks to deliver the material, which tended to make students feel bored, saturated and less interactive in the learning process . Research and development *Hiro Card* media This through 4 stages , namely *define* , *design* , *development* , and *dissemination* .

In study This is the product being developed is *Hiro Card* media in the Mathematics subject Roman Numbers . Development *Hiro Card* media This expected can help participant educate in the learning process in a way maximum at the time material taking place as well as can help students understand the material more easily .

Based on analysis needs that have been carried out , researchers find that learning media used during the learning process Not yet maximum , that is only with use book package just math . Book package mathematics used \_ sourced from Ministry of Education and Culture . The textbook media used seen not enough interesting with appearance black white and the picture is not colored . Use media Study in form real/conventional will be very useful for participant educate in the process of understanding the subject matter easily , because participant educate Can focus learn material with a different look and more easy as well as structured . The *Hiro Card* media developed was also assessed practical and economical Because No need cost printing and distribution to participant educate because they just have to use it . Participant educate only prepare yourself, know how to use or utilize the media. This *Hiro Card* media give attractive appearance \_ with picture colored cartoon themes and questions exercise a kind of quiz .

*Hiro Card* Media which was developed Of course different with pre-existing learning media, where the *Hiro Card media* trains students to think critically, skills, and collaborate activities in carrying out the learning process. With this learning media, it can help students more easily understand Roman number material, which students often know is that Roman number material is difficult, so by holding this *Hiro Card learning media* , it can encourage students to understand the material more quickly.

Making *Hiro Card* media started from stage First i.e. , stage *define* ( definition ) . In stages this , researcher do three analysis , like analysis curriculum , analysis material , and analysis need . This matter done For know need school For help the learning process on this material. Analysis the done with interview with guardian class in elementary school Country \_ Sempu 2 Serang City as well as For know curriculum and syllabus used \_ in the learning process . After that , researcher analyze curriculum used \_ For identify competence basic and developing indicator in adjustment RPP (Learning Implementation Plan) and syllabus . Analysis syllabus 2013 curriculum , namely analyze core competencies and competencies base so that choose material appropriate lesson \_ with curriculum level Elementary School (SD) (Sari, et al ., 2019: 131).

Furthermore done stages product design \_ \_ \_ with make *storyboards* . Making this *storyboard* aims to plan beginning until end making *Hiro Card* media become more easy For arranged . Then next with prepare a draft of the material and questions that have



been prepared designed in accordance with KD and indicators . The next step that is making design *Hiro Card* media so that *H i r o* media *Card* \_ arranged in a way consistent layout . \_ Making *Hiro Card* media use help application supporters include \_ is *Microsoft Word* , and *Corel Draw* . Appearance information material lesson through use of media or visual displays will \_ \_ makes it easier participant educate understand material ( Riswanto , et al ., 2018: 193). After product *Hiro Card* media finished created , stage next namely feasibility testing ( validation ) by the team expert .

At stage third , viz stage *development* ( development ) carried out a feasibility test ( validation ) with hope can produce product *Hiro Card* This worthy For tested tried and used by participants educate . Based on the results of the feasibility test ( validation ) that have been done to 2 material validators and 2 media validators , researchers get acquisition mark each each validator that feasibility test results show category worthy For design *Hiro Card* media and categories are very worthy For the material is stated worthy . From the results both feasibility tests said , explained that the average of every expert validator expert material obtain mark average feasibility of 80%, and expert validators media obtain mark average feasibility of 90%. So that can concluded that *Hiro Card* media worthy used by participants educate Because has fulfil mark appropriateness Good appropriateness design and materials . Feasibility test result data media and material design from each validator can seen in the following diagram .

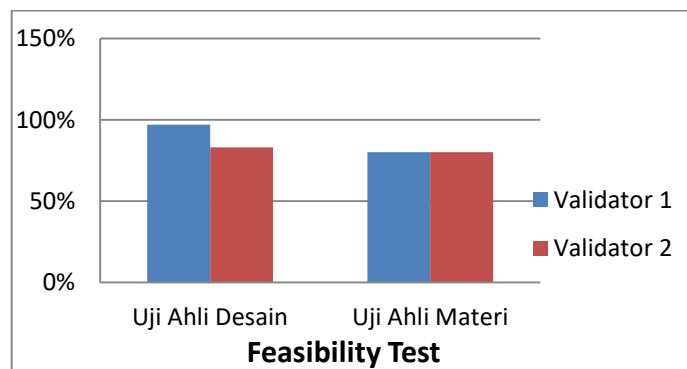


Figure 2 Design and Material Feasibility Test Results

From the feasibility test ( validation ) of the design , researchers get a number of input and suggestions for repair product . On indicators design fill *Hiro card* media there is repair that is repair size *fonts* For text fill material with choose size *font* ( text ) of 12pt



so that participants educate more comfortable read . The media size is also printed at a large size so that it is clearly visible to students.

From the feasibility test ( validation ) of the material , the researcher get a number of input and suggestions for repair product . In aspect appropriateness presentation indicator supporter presentation there is repair that is repair question practice for more customized return with material and replace question core exercises \_ similar with question previously . Besides that , on the aspect appropriateness presentation indicator completeness presentation there is repair that is repair chaos writing proper glossary \_ written in a way sort according to the alphabet as well improvements to the reference list the best picture given explanation addition about source and creator picture .

From the feasibility test ( validation ) of the material , the researcher get a number of input and suggestions for repair product . On indicators straightforward item evaluation effectiveness sentence there is repair that is repair the sentence in the instructions use missing modules \_ appropriate should repaired with use sentence simple right \_ target . After carry out feasibility tests ( validation ) and improvements product , stage last thing to do i.e. , stage *desimination* ( dissemination ) with do a test run field at SD N Sempu 2 Serang City in class I V. Trial carried out at SDN Sempu 2 Serang City with amount sample of 25 participants educate . The data obtained from testing \_ that is obtain average value 85% with very good category .

Through trials , it was found response about advantages and disadvantages product from participant educate after implementation of the online learning process using *Hiro Card* media . Participant educate say that they feel happy and interested use *Hiro Card* media Because previously teachers only use source Study form book package just . After use *Hiro Card* media in the learning process , participants educate say that material presented \_ easy For understand and add knowledge they . However , there are shortcomings expressed by participants \_ \_ educate about This *Hiro Card* media , like use size letters in the content material Still seen small , participant educate Still A little difficulty use This *Hiro Card* media is because the cartoon images used have not been seen before by students .

There is *Hiro Card* media this may help participant educate For more easy and systematic in understand material the lessons conveyed , can be help participant educate practice Skills Work scientific participant educate during learning takes place , and

delivers experience fun learning \_ as well as teach participant educate For Study in a way group or Work The same . Based on discussion above , p \_ This show that *Hiro Card* media worthy used in the field Because feasibility test results and results response participant educate has fulfil criteria that have been set . With This is *Hiro Card* media which was developed Already in accordance with characteristics main visual media .

Learning begins with an opening greeting, asking students how they are and praying led by the class leader. Then the researcher made an appreciation by linking it to previous learning. Researchers also do not forget to motivate students to be enthusiastic about participating in learning when testing products. Then the researcher asked the students to answer the questions given by the researcher regarding the Roman numeral material verbally with the question "Who can write the Roman numeral symbol for the number 50?" Almost all students were brave and correctly answered the questions asked by the researcher. Then the researcher asked the students to count as a sign that group division would begin. After that, students will count starting from numbers 1-5, then students will gather with their group friends according to the numbers mentioned. Then the researcher distributed the LKPD sheets that had been provided according to the request of the material expert validator, where in this LKPD there was a brief content of material on the symbols of Roman numbers.

Then the researcher showed the *Hiro Card learning media* and printed it with a size of 3x3 meters in the form of a banner with numbers There are 100 boxes that resemble monopoly boxes and there are Roman numeral symbols and also in each box there are several cartoon pictures with a hero/ *Hiro theme* in different colors and dice measuring 20x20 cm in different colors so that students are more interested. in viewing and in use. After the learning media had been prepared, the researcher immediately asked the group representatives to carry out the first game round. Each group member gets one opportunity to play in turns and students will also get one turn to roll the dice. After throwing, students are asked to stand in the box according to the dice number they got. At the same time, students are asked to take the question cards that have been provided, then members who get questions can immediately join their group members to discuss the answers together. If they have got the right answer, students are invited to immediately write their answer on the LKPD paper provided. If students are able to answer the questions that are outlined then the group will get points, but if students are

unable to answer the questions from the questions then the students will be declared disqualified and will not get points. For the group that gets the most points and is able to reach the last box symbolized by the letter C, namely a score of 100, the group members are declared to have passed and understand the material regarding Roman numeral symbols. After this media game is finished, the teacher gives students a response questionnaire.

The learning media used aims to determine the results of applying visual media during the learning process. After the researcher tested the *Hiro Card media*, the researcher did not find it difficult to prepare the lesson, both students also seemed to really enjoy and be enthusiastic when using this learning media game. It can be seen that on average students can answer the practice questions given by researchers although there are still some students who are not correct in giving their answers.

However, the advantages of the *Hiro Card learning media* cannot cover up the shortcomings, namely that this learning media cannot be used online unless this media is converted into digital media. Then, in making this media, researchers need quite a long time in designing this media using the help of applications and requires expertise and accuracy.

*Hiro Card* visual learning media in elementary schools, based on media and material expert validation tests, this *Hiro Card learning media* can be categorized as very suitable for use and has received a very good response from users .

## KESIMPULAN

After the teacher used the *Hiro Card learning media*, student activity was visible, collaboration between students appeared to increase. Students immediately actively asked questions regarding the use of the media, and students even actively participated in using it and were enthusiastic in answering questions contained in the *Hiro Card media*. The teacher also explained that the *Hiro Card* learning media can be used for a long time. Students also seemed to understand Roman number material more quickly which was helped by the *Hiro Card learning media*.

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