



## DEVELOPMENT OF ANIMATED VIDEOS IN SCIENCE LESSONS IN MATERIAL CHANGE BEING OBJECT ON CLASS IV ELEMENTARY SCHOOL

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### Abstract

This research aims to improve science learning outcomes regarding changes in the shape of objects. The development of this learning video media applies the principles put forward by Richard E. Mayer. This principle is a principle in designing multimedia capable learning become a guide for developers to create effective and effective learning multimedia efficient. Media learning videos who will be researchers develop This consist of several elements multimedia which includes text, images, sound and animation. So the application of this principle is related with the media that will be developed. The research in this article uses this type of research development ( *research and development* ). Development research aims to produce innovation a product in a certain field and test the accuracy of its usability (Maisarah et al., 2021). Object The research or product developed in this article is: development of animated videos on science lesson on material changes in the form of objects in class 4 elementary school, based on development determined by the researcher, the aim of this development research is to develop media video learning valid And effective for in use in activity learning.

**Keywords :** Videos Learning, Canva, Knowledge Knowledge Natural And Social

### Introduction

Learning is a process of interaction between students and educators and resources Study on something environment Study And Education role important in improving source quality human resources, so improvement efforts need to be made and improving the quality of services in the education sector. Through human education can expand his insight And obtain knowledge knowledge. ). On moment This Ministry Education And Culture that is Nadiem Makarim promote regarding the independent curriculum. At the elementary/MI level, one of the compulsory subjects in the independent curriculum is IPAS. One of the learning materials available in science subjects, especially class IV, regarding changes in the form of objects Natural Sciences (IPA) is a part of science or knowledge Originally it came from the English "scientia" which means I know. "science" consists of social sciences (Knowledge social knowledge) and natural. Technology information And communication very influential in development education so that today's information technology-based learning is must. Apart from that, teachers are also required to have social competence, where teachers can use communication technology. Developing teaching materials is one thing abilities that a teacher must have. This ability must be realized to achieve the expected competencies. Therefore, science and science learning in elementary school requires a medium as a means of supporting learning, in addition to creating a process learning pleasant videos animation Also can make student more long remember mater I And remember material And picture-picture Which in show so it's easy for students understand material Which in give. Development media video learning This apply principle Which in put forward by Richard E. Mayer. This principle is a principle in design learning multimedia that can serve as a guide

for developers create effective and efficient learning multimedia. Learning video media which the researcher will develop consists of several multimedia elements which include: text, images, sound and animation. So the application of this principle is related to the media Which will be develop. Based on observations and interviews conducted at SD Negeri 10 Tg Pura, Material learning be delivered with method lecture, so that Teacher role as facilitator active Which cause participant educate not enough active when learning. When Teacher convey material Not yet supported material teach Which fulfil material as well as characteristics participant educate. Based on development Which determined by researcher, as for objective in This development research is to develop learning video media valid And effective For in use in activity learning. Based on development Which determined by researcher, as for objective in This development research is developing video media learning valid And effective For in use in activity learning.

## Research Methodology

Development research aims to produce product innovation in certain fields and test the accuracy of its usefulness (Maisarah et al., 2021). Object The research or products developed in this article are: development video animation on lesson ipas on material change form object on class iv elementary school Study development consists from various model, And on study This Only one development research model is used, namely Thiagarajan or 4D. Model Thiagarajan or 4D consists of four development steps, namely: *define* , *design* , *develop* , and *disseminate* (Kurniawan & Dewi, 2017; Surbakti et al., 2022). Model design Thiagarajan or 4D presented in the figure 1 :



**Picture 1. Steps Model Thiagarajan or 4D (Sutarti & Irawan, 2017)**

Figure 1 reflects the product development steps in the research This. By detailed development product done with mechanism as following:

### 1. Define

At this stage the aim is to determine and define the needs need in the process learning as well as gather various information relating to the product to be developed. There are 5 step on stage This that is:

#### a. *Front end Analysis (Analysis beginning-end)*

Activity Which done on stage This is analysis beginning to end about problems faced by teachers in the learning process. At this stage also analyze the teaching materials used and learning strategies used by teachers for students.

#### b. *Learner Analysis (Analysis Participant Educate)*

On stage This, analysis Which done is about problem Which faced by student related with material, material teach And strategy Which used by Teacher in learning.

#### c. *Tasks Analysis (Task Analysis)*

Task analysis is carried out to determine the material that will be used in material teach.

#### d. *Concept Analysis (Analysis Draft)*

Analysis draft that is explained concepts from material Which will discussed on material teach.

#### e. *Specifying Instructional Objectives (Formulation of Learning Objectives)*

At this stage, we analyze the learning objectives to achieve indicator learning outcomes.

### 2. Design

After do stage definition ( *define* ) so product has can arranged based on beginning-end analysis, student analysis, task analysis, analysis draft And analysis objective learning. So get organized design product beginning.

### 3. Development

The development stage is the final form of digital teaching materials that have been created produced and revised according to suggestions from experts. At this stage There are some activities that done that is:

#### a. **Making Video animation on science lessons on change formelementary school IV objects**

On stage this is done. Material teach digital which already designed, next made suitable by plan which already determined.

#### b. **Validation Video animation on lesson ipas on change formelementary school IV objects**

At this stage, validation of digital teaching materials is carried out by the material and media experts to determine validity and get advice material improvement teach digital Which made.

**c. Revision Material Teach Digital Helpful Heyzine**

After validation is carried out, this stage is a researcher do product revisions provided by material and media validators for teaching materials digital ones developed become more Good.

**4. Disseminate**

Stage final is dissemination. Objective from stage This is spreadproduct.

From the research steps, the research subject is depicted, namely the expert validator who provides assessments and provides suggestions for revisions at the development stage ( *development* ). So that subject on study This that is: One person validator onfield expert material IPA school base And One person validator on field expert media. Technique collection data on study This that is questionnaire closed with use sheet questionnaire validator as instrument. Data Which obtained from instrument furthermore analyzed

**Result & Discussion**

Development research this produces a product by using Thiagarajan's 4-D ( *Four -D* ) development model which consists of 4 steps. The following explanation video development stages animation on lesson class science IV

**Stage Define**

*Define* stage aims to collect the information needed for developing animated video products in class IV science lessons . There are 5 step on stage This that is:

**1. Front end Analysis (Analysis beginning-end)**

Activities that done at this stage is doing interview with teacher and student. Based on the results of the interview, it was found that in learning The teacher uses lecture, discussion and question and answer methods and these are not yet available animated video in the social sciences lesson on changes in the shape of objects in class IV. Results interview together student obtained that student difficult understand material learning Because lack of source other Which used in learning.

**2. Learner Analysis (Analysis Participant Educate)**

In classroom learning, students are used to the lecture, discussion and question methods answer so that students only hear the explanation from the teacher. sometimes the teacher too use power point And videos learning, but Not yet There is material teach additions such as digital based. Therefore, teaching materials are very necessary digital For addition in learning so that student active in process learning.

**3. Tasks Analysis (Analysis Task)**

On stage This done preparation material Which will served on development videos animation on lesson ipas on material change formIV items for elementary school teaching materials also have quizzes, evaluation questions and LKPD to be done by students to know student understanding to material teach the.

**4. Concept Analysis (Analysis Draft)**

The concept analysis carried out was analyzing learning outcomes in change material form fanciful thing in elementary school Following table achievements learning.

**Table 1. Achievements Learning**

Capaian Pembelajaran
Peserta didik mengidentifikasi proses perubahan wujud zat dan perubahan bentuk energi dalam kehidupan sehari-hari. Peserta didik mengidentifikasi sumber dan bentuk energi serta menjelaskan proses perubahan bentuk energi dalam kehidupan sehari-hari (contoh: energi kalor, listrik, bunyi, cahaya). Peserta didik memanfaatkan gejala kemagnetan dalam kehidupan sehari-hari, mendemonstrasikan berbagai jenis gaya dan pengaruhnya terhadap arah, gerak dan bentuk benda.

**5. Specifying Instructional Objectives (Formulation of Learning Objectives)**

Formulation of learning objectives is made to design animated video on lessons ipas on material change form

object on class iv elementary school based on achievements learning. The following is a table of social science learning objectives for material on changes in the shape of objectsclass iv elementary school

**Table 2. Objective Learning**

No	Objective Learning
1	Student capable know understanding change form object
2	Student capable know Miscellaneous change form object
3	Student capable know example incident change form object in environment everyday life

### Stage Design

Design beginning from videos animation On lesson ipas Which will developedas material teach digital that is:

- Attachment front (cover, profile writer, say introduction, list content, instruction use, competency map And concept maps).
- Contents material teach digital help *videos animation change form object* consists from: (material, quizzes, summary, question evaluation, And lkpd).
- Part end videos development videos loading animation (list References).

### Stage Development

Stage development aim as process making videos animation Onlesson ipas stage This There is some activities done that is:

- Making development videos animation on eye lesson ipas onchange material form objects in class IV elementary school**

Following This making videos animation Which can seen on picture under This:

- Making cover front Which containing title material learning, class, And Images support related to the material learning. Besides That Also there is an author profile .



**Picture 1. Front cover**



Picture 2 . Contents And material



Picture 3 fill and material

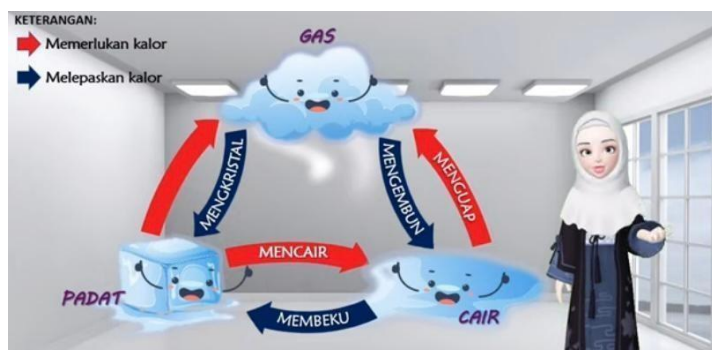


Picture 4 . Contents And material



Picture 5 . Contents And material





Picture 6 . Contents And material



Picture 7 . Conclusion And closing

#### Validation Video animation on eye lesson ipas on material change the form of objects on class VI elementary school

Validation material teach done by 2 person validator that is expert material And expertmedia. Evaluation video animation lesson ipas on material change form objects are carried out by giving an animated video assessment questionnaire to science subjects that will be filled in by giving a grade to each aspect as well as criticism and suggestion. The following is validation results by validator:

No.	Validation Stage	Validator Expert	Score Validation	Score Maximum	PRS	Criteria Validity
1	First	Material	24	36	66.67%	Valid
		Videos animation	40	60	66.67%	Valid
		Language	25	36	69.44%	Valid
	Average Score Validation The first stage				67.59%	Valid
2	Second	Material	33	36	91.67%	Very Valid
		Videos animation	57	60	95.00%	Very Valid
		Language	33	36	91.67%	Very Valid
	Average Score Validation Stage Second				92.78%	Very Valid

Table 1 shows that validation was carried out in the first stage of the animated video on lesson ipas on material change form object obtain score acquisition average as big as 67.59% or categorized valid. By detailed The material expert validator also gave a score of 66.67% with the valid category for Animated video in the IPAS lesson on changes in the form of objects. Furthermore for the animated video, a score of 66.67% was obtained in the valid category. Expert validator The material also provides a score for language of 69.44% in the valid category.

There are several improvement notes provided by the validator at stage 1 i.e. don't have too many pictures, write down the sources for both pictures video, background is more aligned, displays competency maps and instructions use. After product revised, so done validation stage second. Results validation on stage second material teach digital help *heyzine* on material diversity culture My Indonesia obtain score average as big as 92.78% with a very valid category. In detail, data was obtained from media experts give score as big as 91.67% with category very valid For material. Furthermore, it also obtained a score of 95.00% with a very valid category For material teach digital. Validator expert media Also give score For linguistics 91.67% with very valid category. Thus teaching materials *heyzine*- assisted digital material on my Indonesian cultural diversity, no need revised Again, so that can concluded that material teach digital *Heyzine's* help with my Indonesian cultural diversity material is very worthy For used by students class IV elementary school.

### **Revision video animation on lesson ipas on material changeobject form**

There are several improvements based on criticism and suggestions by the validators member after video animation on lesson fan validated. Here somerepair which done: Repair on type writing Which too Lots Which used And background to make it more even and display the full link on for sources videos or images.

### **Disseminate Stage**

On stage This, researcher do spread product video animation on science lesson material on changes in the form of objects. Distribution is carried out to students class IV SD 10 TG PURA. During the distribution of this digital teaching material product Students are very enthusiastic about using animated videos in science lessons material change form object This very help student in understandlearning material, especially material on changes in the form of objects. The following is some photos on while students using teaching materials digital.

### **Conclusion**

Based on results study And development video animation In the science and science lesson, the material on changes in the form of objects concluded namely the development of animated videos in science and technology lessons on change material form of objects using Thiagarajan research and development methods, namely the *Four-D (4-D)* development model which consists of *define, design, develop, and disseminate*. Assessment results from material expert validators and media related to the appropriateness level of *video-* assisted digital teaching materials *animation* obtain score acquisition average as big as 67.59% or categorized valid whereas on validator second that is expert media obtained an average score of 92.78% with a very valid category. So that it can concluded that development video animation on in science and technology lessons, the material on changes in the shape of objects is very suitable for used for student class IV elementary school, as well as material teach the can help students understand learning material easily specifically on material change object form

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