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Development of learning videos with a cultural-based realistic mathematics education approach on congruence and similarity materials

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Abstract

The Covid-19 pandemic has made learning activities carried out online so that many students have difficulty understanding the material so interesting learning media are needed with flexible access. This study aims to develop a learning video with a culture-based RME approach on congruence and similarity materials and to determine the validity and practicality of the product. This type of research is development research with the ADDIE research model. The subjects of this study were students of class IX A MTs Negeri 9 Bantul. The data collection methods are interviews and questionnaires. The data analysis step is carried out by calculating and analyzing the results of the validity and practicality tests. The results of the product validity test obtained very valid criteria with an average value of 4.75 by material experts and 4.82 by media experts. At the same time, the practicality test got a percentage of 91.82% with very practical criteria in small class trials and a percentage of 82.67% with very practical criteria in large class trials. Based on these results, the learning video can be declared very valid and very practical to use in learning.

Keywords: learning video, RME, culture, congruence, and similarity

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INTRODUCTION

Indonesia has declared the Covid-19 outbreak a national non-natural disaster and inaugurated it through a Presidential Decree (Keppres) of the Republic of Indonesia Number 12 of 2020 (Ihsanudin, 2020). In line with the impact of the pandemic outbreak, the learning process is carried out online. Online learning is implemented following the Circular from the Minister of Education and Culture No. 4 of 2020 and re-emphasized through the Secretary-General Circular No. 15 of 2020. Online learning is a learning activity that, in its implementation, uses the internet network via computers or mobile phones (Dewi, 2020). In practice, online learning can provide advantages in its performance. Namely, learning can be carried out without being limited by space and time and can use various sources and online teaching materials (Mustakim, 2020).

Huzaimah & Amelia (2021) revealed that online learning could lead to saturation in students, so it requires teachers to innovate by using exciting learning media. This is in line with Anugraha's (2020) view, which reveals

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that teachers have a role in applying learning schemes, media, and exciting teaching materials to support student activity during online learning. With that, the implementation of online learning is not an easy matter, especially in mathematics.

Mathematics has a role in preparing students to face various conditions and challenges of life and is constantly changing and developing (Imswatama & Lukman, 2018). However, many students are constrained in understanding definitions, mathematical concepts, and principles and have difficulty understanding mathematical concepts (Yusmin, 2017). In line with this, Cahirati et al. (2020) added that students' difficulties in mathematics were also found in understanding apperception, difficulty understanding concepts, especially in contextual problems, and difficulties in mathematical modeling. In this case, the teacher is vital in creating meaningful mathematics learning for students (Imswatama & Lukman, 2018).

One of the efforts in dealing with difficulties in understanding mathematics is using learning media. According to Sanjaya (2012), learning media are various elements in the environment of students to stimulate learning. The use of learning media can be a bridge for students to understand abstract knowledge into concrete (Sanjaya, 2012). Learning media can be classified into three categories: auditive, visual, and audiovisual. One example of audiovisual learning media is video learning. Gusmania & Wulandari (2018) explained that the use of learning media in the form of videos could help the implementation of learning, as well as display engaging animations following the material and learning objectives to make it easier for students to understand mathematical concepts.

The use of learning media does not necessarily become the only key to the successful implementation of learning but is also influenced by the approach to learning. One of the learning approaches that can be used is the realistic mathematics education (RME) approach. According to Hadi (2014), the RME approach in learning mathematics is an approach that emphasizes the reality, experience, and environment of students in the early stages of learning mathematics. Real problems in the participant's environment are the origin of the emergence of concepts, which can then be developed into formal knowledge and can be used to solve everyday problems (Suryani, 2021). Learning with the RME approach has characteristics, namely using realistic and contextual problems, interactive, using models, integrated with other topics or materials, and respecting students' contributions (Van den & Drijvers, 2020). Culture-based mathematics learning can be utilized in constructing mathematical concepts by students with the initial insights they already have through the conditions of their cultural environment (Ricardo, 2016).

The pre-research was conducted at MTs Negeri 9 Bantul on October 13, 2021, through interviews with grade IX math teachers and distributing questionnaires to grade IX students. Information obtained from interviews with teachers, namely learning during the Covid-19 pandemic, is often carried out using WhatsApp Groups and Google Classroom. Learning

media through WhatsApp Groups provides and explains the material and discusses questions through written and voice messages. At the same time, Google Classroom and Google Forms are also used when submitting assignments. Learning with video conferencing is not chosen as a learning medium because not all students can access it simultaneously. Sometimes teachers also use learning videos on Youtube, which are then distributed to students, but this is considered less effective because the available duration is too long.

Furthermore, based on the questionnaire 75 students of class IX had filled out, information was obtained that 77.33% of students admitted to having difficulty understanding mathematics lessons during online learning, 78.67% of students expressed confusion in understanding mathematics material when learning was done via WhatsApp. As many as 98.67% of students need a learning media whose access can be done anywhere and anytime, and 92% of students think it is necessary to have exciting learning videos to implement learning.

The learning video developed with the culture-based RME approach is expected to be a means of helping teachers to explain the material in a shorter time and make it easier for students to understand the material. This material is selected based on the Computer Standard National Examination (UNBK) results for students of MTs Negeri 9 Bantul who can correctly answer questions related to the similarity material. Congruence, as much as 28.28% of students answered correctly (Puspendik, 2019). This indicates a lack of understanding of students in the similarity material, so this learning video development research chooses the material for congruence and similarity between flat shapes.

Based on the explanation above, problems are formulated, namely, how is the form of learning videos with a culture-based RME approach through the ADDIE research model?, how is the validity of developing learning videos with a culture-based RME approach?, and how is the practicality of developing a learning video with a culture-based RME approach?. It aims to discover the procedures for developing learning videos with a culture-based RME approach and the product's validity and practicality. This development research will focus on class IX students at MTs Negeri 9 Bantul on congruence and similarity between flat shapes.

RESEARCH METHOD

This study uses the Research and Development (RnD) method, which has an output in the form of a product based on the results of a needs analysis (Sugiyono, 2016). The RnD research model used here is the ADDIE (Analyze, Design, Development, Implementation, & Evaluation) model. By the selected research model, this development research procedure consists of five steps.

The first step is an analysis that aims to identify gaps or problems that occur, starting from the aspects of resources, motivation, knowledge, and skills (Ghani & Daud, 2018). This step is carried out by analyzing three things; the first is an analysis of the characteristics of students by

conducting interviews with mathematics teachers in class IX and distributing questionnaires to students in class IX to determine the characteristics during the implementation of online learning. Next is a needs analysis carried out to determine the needs of students in helping to understand the subject matter. The results of the analysis of the characteristics of students are reviewed together with the ability of class IX students to understand subject matter based on the results of the 2019 National Examination. This analysis results in the selection of products to be developed. The third is a curriculum analysis conducted to identify and align the material with the school curriculum. The curriculum characteristics used by the school will lead to the chosen approach.

The second step is a design that aims to determine what is needed in product development, namely in the form of adjusting the substance of the material for congruence and similarity with KD and KI, the initial appearance of the product by making a product framework, determining instrument grids, and making expert validation questionnaire instruments, and responses from students. Presentation of material content also aligns with the chosen approach, namely culture-based RME. The third step is development which aims to produce a product that has been adapted to the previous step. The procedure at this step is to actualize the designs that have been made according to the product framework in the form of videos. The process of making this video uses the Canva application. Furthermore, the video that has been made will be tested for validity by material experts and media experts. Then revisions are made according to input from these experts.

The fourth step is the implementation of the product that has been developed. Learning videos that have been declared valid are then uploaded first on YouTube, and the videos are divided into four parts. The first and second parts are congruence material in polygon and flat triangular shapes, and the third is similarity material in triangles and flat polygonal shapes. The fourth part is an example of story questions that have ASPD-type questions. After that, the learning video began to be implemented by being tested on class IX A students at MTsN 9 Bantul in two groups: a small-scale trial of four students and a large-scale problem of 26 students. If on a small-scale test there is something that needs to be revised, the video will be corrected first before being uploaded again on Youtube. This implementation step aims to determine the practicality of learning videos from student responses.

The last step is an evaluation reviewed from two sectors, namely experts and students. This evaluation aims to see the feasibility and practicality of the learning videos developed, and this is viewed from a material expert validation questionnaire that examines the substance of the material in the learning video, a media expert validation questionnaire that examines the development of video media, as well as a student response questionnaire to test the practicality of the video learning.

The test subjects in this study were validators of material experts and media experts from class IX A mathematics lecturers and teachers at MTsN

9 Bantul, as well as 26 students, four of whom were included in the small class trial. The data collection used was interviewed at the time of pre-study with the teacher and a questionnaire when collecting pre-study data from students as well as research questionnaires for validation & practicality tests. The data analysis technique in this study is divided into two: the validity data from material and media experts and data analysis of the practicality of students in small and large class tests.

The questionnaire has five answer choices for validators and students, with all positive statements. Here are the scoring guidelines:

Table 1. Instrument Scoring Guidelines

Scoring Criteria	Score
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

(Source: Aini et al., 2018)

The instrument that the validator and students have filled in will produce scores which are then processed and analyzed to obtain conclusions. The following is the calculation formula for the results of the validator assessment.

$$\overline{V} = \frac{\sum_{i=1}^{n} x_i}{n}$$

Formula description:

$\overline{V}$ = Average total validity

x_i = Score aspect to i

n = Number of questions

Next is the calculation of the total average of all validators, namely:

$$\overline{x} = \frac{\sum_{i=1}^{n} \overline{V}}{n}$$

Formula description:

$\overline{x}$ = total mean of all validators

$\overline{V}$ = mean total validity

n = number of validators

The calculated results are then interpreted into qualitative data with the following guidelines:

Table 2. Validity Categorization Guidelines

Score Interval	Category
$0 \leq \bar{x} < 1{,}8$	Invalid
$1{,}8 \leq \bar{x} < 2{,}6$	Less Valid
$2{,}6 \leq \bar{x} < 3{,}4$	Quite Valid
$3{,}4 \leq \bar{x} < 4{,}2$	Valid
$4{,}2 \leq \bar{x} \leq 5$	Very Valid

(Source: Aini et al., 2018:75)

Explanation:

Learning videos can be used if the results of the assessment by the validator are in the minimally valid category, if the results of the evaluation are in the quite valid category, then a revision is needed, and if the results of the assessment are in the less valid and invalid category then the research needs to be repeated.

While the calculation formula for the results of student responses is as follows:

$$NP = \frac{R}{SM} \times 100\%$$

Formula description:

NP= Percentage sought
R= Score obtained
SM= Max score
(Source: Wijayanti, 2018)

After the calculation, the percentage conversion is carried out and interpreted into qualitative data by utilizing the criteria for the practicality category of learning videos, namely:

Table 3. Criteria for Categorizing Practicality

Score Interval	Category
$0\% \leq NP < 20\%$	Impractical
$20\% \leq NP < 40\%$	Less Practical
$40\% \leq NP < 60\%$	Quite Practical
$60\% \leq NP < 80\%$	Practical
$80\% \leq NP \leq 100\%$	Very Practical

(Source: Sudarman & Vahlia, 2021)

Explanation:

Learning videos can be used if the results of the practicality assessment by students are in the minimally practical category, if the evaluation results are in the quite practical category then a revision is

needed, and if the evaluation results are in the less practical and impractical category then the research needs to be repeated.

RESULTS AND DISCUSSION

The following are the results and discussion of the steps for developing a learning video with a culture-based RME approach that has been carried out using the ADDIE model.

Analysis

The results of the analysis of problems in online learning mathematics for class IX MTs Negeri 9 Bantul are divided into three parts: analysis of student characteristics, needs analysis, and curriculum analysis.

Analysis of student characteristics

At this step of the analysis, the student's characteristics were obtained. Based on the results of interviews with the teacher, the implementation of learning was carried out through WhatsApp groups by providing and explaining the material and discussing questions through written and voice messages. At the same time, google classroom and google forms were used when collecting assignments. The use of learning with video conferencing is not chosen as a learning medium because not all students can access it simultaneously.

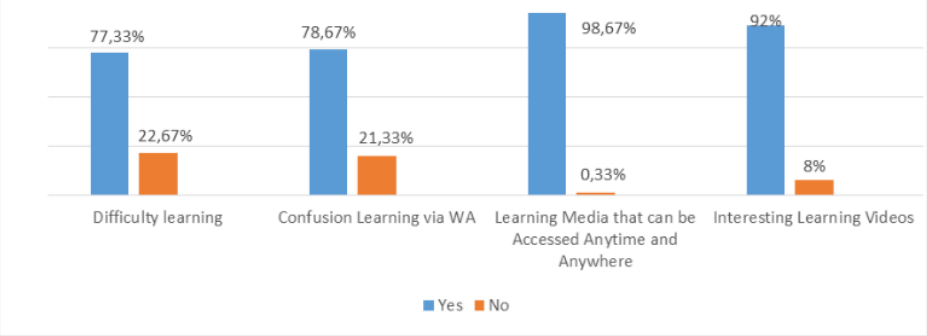

Figure I. Results of Pre-Research Questionnaires to Class IX Students at MTsN 9 Bantul.

The questionnaire results that students had filled out showed that 77.33% of students admitted to having difficulty understanding mathematics lessons during online learning, and 78.67% expressed confusion in understanding mathematics material when learning was done via WhatsApp. As many as 98.67% of students require learning media whose access can be done anywhere and anytime, and 92% of students think it is necessary to have interesting learning videos to implement learning. Therefore, at the time of online learning, interesting learning videos are needed, with a duration that is not too long and can be accessed flexibly.

Curriculum analysis

The use of the curriculum in schools is the 2013 curriculum, then the presentation of the material is aligned with the curriculum. The 2013

curriculum, which puts forward the process of understanding students' concepts and uses problems that are close to the everyday learning environment, has not yet been in the form of learning videos and is related to culture. Therefore, convey a culture-based RME learning approach to the developed learning videos.

Analysis of needs and materials

Based on the 2019 National Examination results, no more than 50% of students in MTs N 9 Bantul answered correctly regarding congruence and similarity in flat shapes. This analysis resulted in the selection of products to be developed, namely learning videos on congruence and similarity materials.

Design

At this step, the researcher designed a learning video design with a culture-based RME approach on congruent and congruent material. The results of this stage are:

Presentation of the content or substance of the material

The substance of this material has been adapted to KI and KD based on the 2013 curriculum and adapted to the indicators of competency achievement developed, which includes a discussion of the concept of congruence in triangles and other flat shapes, the concept of similarity materials in triangles and different flat shapes, as well as examples and exercises about congruence and similarity. The indicators for achieving these competencies include: (1) Identifying the congruence and similarity of two shapes, (2) Testing the congruence and similarity of two triangles, (3) Explaining the requirements for two similarity shapes, (4) Explaining the conditions congruence of two shapes, (5) Determine the length of the side of the size of the unknown angle of two similar flat figures, and (6) Solve everyday problems related to the application of the concept of congruence and similarity of flat figures.

The presentation of this material also includes the selection of cultural-based objects in Indonesia that will be used to explain the material. The object chosen for each of the problems discussed is different. In the material of congruence, the selected object is the building part of the Kotagede Mataram Mosque monument and the lower support on the stilts. The object used in the discussion of the similarity material is the roof of the Mataram Kotagede Mosque and the Great Mosque of Banten. Next, in discussing examples of problems using puppet figures found in the Yogyakarta Palace and the Mataram Mosque monument.

Preparation of learning video framework

The framework for this learning video was created by designing the layout of the material in the Canva application. Each material's proven congruence and similarity will explain the ratio of its angles and sides, and then conclusions will be given regarding the material.

Preparation of expert validation questionnaire instruments and responses from students

Before preparing the questionnaire, first, determine the instrument grid. The questionnaire grid contains aspects, indicators, and item numbers, and this questionnaire grid is then developed into questions in the questionnaire. The following is a grid of material expert validation instruments used in assessing the content of learning videos with the developed culture-based RME approach. Instruments regarding this material are reviewed from the aspects of material feasibility, language feasibility, presentation feasibility, and conformity with a culture-based RME approach, as follows:

Table 4. Grid of Material Assessment Instruments in Learning Videos

Aspect	Indicator	Item Number
Feasibility of Materials	Conformity of Core Competency and Basic Competency.	1
	Conformity of Competency Achievement Indicators with Competency materials.	2
	The suitability of video as an alternative teaching media.	3
	The truth of the substance of the learning material.	4
	Consistent presentation of the material.	5
	The accuracy of the examples in clarifying the material.	6
Feasibility of Language	Readability of congruent and similarity material.	7
	Clarity of delivery of information in the video.	8
	Appropriateness of effective use of language.	9
	Accuracy in the use of Indonesian Language according to enhanced spelling.	10
Feasibility of Serving	Clarity of indicators to be obtained.	11
	Providing motivation and attraction for students.	12
	Coherent video presentation.	13
Conformance to the Culture-Based RME Approach	The suitability of the learning video with the characteristics of the RME approach.	14,15
	The use of cultural objects as a	16

learning apperception.

(Source: Putra, 2020 with modifications)

The following validation instrument is for media experts to use in assessing the presentation of learning videos with the developed culture-based RME approach. Instruments regarding this media are viewed from aspects of language, presentation, and graphics. The media expert assessment instrument is sourced from Fatonah (2021) and has been adapted to the research needs as follows:

Table 5. Grid of Learning Video Media Assessment Instruments

Aspect	Indicator	Item Number
Language Accuracy	The suitability of the use of Indonesian Language with the correct rules.	1
	Efficient use of language.	2
	The clarity in the delivery of material.	3
Serving Eligibility	The attractiveness of learning videos for students.	4
	Systematic coherence of video presentation.	5
	Ease of use of learning videos.	6
Graphic Eligibility	The suitability of the image on the video with the subject matter.	7
	The suitability of the video illustration with the learning material.	8
	Use of easy-to-read fonts and sizes.	9,10
	Attractive learning video display design.	11

(Source: Fatonah, 2019 with modifications)

This instrument is used to assess learning videos with a culture-based RME approach by students as test subjects and users. Instruments were also used to find out responses from students regarding the videos viewed from the aspects of attention, relevance, and belief. The student response instrument grid is sourced from Putra (2020:24) and has been adapted to the research needs as follows:

Table 6. Grid of Student Response Instruments to Learning Videos

Aspect	Indicator	Item Number
Attention	Interesting use of pictures and illustrations	1
	Interesting and fun learning videos	2
	Learning material with a culture-based RME approach provides a new alternative to understanding the material	3
Linkages	Giving examples of ASPD-type questions that are easy to understand	4
	Use of language that is easy to understand	5
	The type and size of the font used are easy to read	6
	Clarity of voice/audio in delivering material	7
Confidence	Provides convenience in learning the concept of the material	8
	Increase interest in learning	9
	Increase motivation for achievement	10
	Access the use of learning videos without space and time limits	11

(Source: Putra, 2020:24 with modifications)

The questionnaire that has been compiled will be used to test the validity of the learning videos based on the assessments of media experts and material experts, as well as to test the practicality of learning videos from student assessments. Before being used, the questionnaire was reviewed and validated first by one of the lecturers. Then the researcher corrected the questionnaire following the suggestions and input of the lecturer. After going through this stage, the questionnaire can be used in research.

Development

The development stage is the realization stage of the video framework that has been created, namely by providing animation and making videos combined with voice explanations using the Canva application. The voice or voice-over is recorded with a handphone and then combined with the video. This learning video is divided into four parts, two related to the discussion of congruence material, the third part is the discussion of the similarity material, and the fourth part is the discussion of sample questions and practice questions. Each video is divided into three sessions: opening, material explanation, and closing.

The learning videos that have been developed are then tested for validity by material and media experts. Each validator consisted of a

mathematics education lecturer and class IX mathematics teacher at MTs Negeri 9 Bantul. The results of this validation process are in the form of criticism, suggestions, and assessments used as the basis for revising the learning video. Furthermore, the learning video is valid to be tested on students.

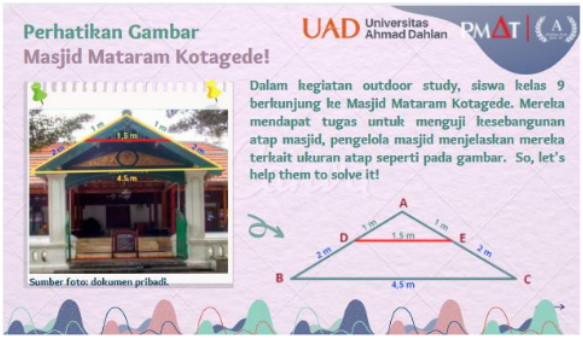

Figure II. Snippets of learning videos related to similarity materials

Figure II above is a video snippet that has been revised in the third part of the learning video product related to the similarity material. In the discussion, students are invited and guided to test the similarity of the roof of the Mataram Kotagede Mosque with the RME approach, starting by using a model in the form of images, comparing the sides and corresponding angles to obtain conclusions.

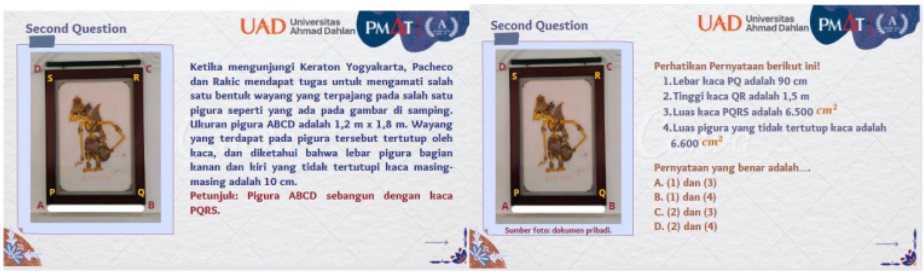

Figure III. Snippets of sample questions in the learning video

Figure III above is a snippet of one of the examples of questions in the learning video. The examples of questions given have been adapted to the types of questions that are widely used in the assessment of regional education standardization in Jogja, then these examples of questions are discussed thoroughly in the video by proving each statement to obtain an answer.

Implementation

The implementation phase is the product trial aimed at class IX A students at MTs Negeri 9 Bantul for the 2021/2022 academic year. This was done to find out the responses of students regarding the congruence and similarity of material learning videos with the culture-based RME approach. The product trial phase was carried out in two stages, namely small class trials and large class trials. The small class trial phase was conducted to determine the practicality of learning video products from student representatives. There were four students in class IX A who the mathematics teacher selected to take part in this trial at the school on April 20, 2022. The small class trial began with students watching learning videos via YouTube and then giving an assessment of the product through a questionnaire that had been distributed.

The large class trial phase was then carried out on 26 students of class IX A at the school by first distributing a questionnaire and explaining the mechanism for assessing learning videos. Next, students observe the learning videos on YouTube through the LCD in the classroom, and students evaluate the learning videos through the questionnaires that have been distributed.

Evaluation

Activities carried out at the evaluation stage are analyzing the results of research data, namely analysis of product validity from the assessment of material experts and media experts, as well as analysis of the practicality of learning video products from the results of student response questionnaires.

Data analysis

The data obtained from the questionnaire assessment by the material and media expert validators and the students are then analyzed. This data analysis is divided into two: validity data analysis and practicality data analysis.

Validity data analysis

The first validity data analysis is from the material expert validator. The results at this stage were obtained by analyzing the data from the assessment of two material experts on the learning video, which consisted of four aspects and 16 questions. The following is material expert validation data:

Table 7. Material Expert Validation Results

Assessment Score on Each Aspect	Validator	
	Lecturer	Mathematics Teacher
Material Eligibility	28	30
Language Eligibility	17	20
Serving Eligibility	15	15
Compatibility with culture-based RME approach	12	15
Total Score	72	80
Average	4,5	5
Total Average	4,75	

Based on the results of the material expert's assessment, it is known that the total score given by the validator on the aspect of material feasibility gets a total score of 58 out of 60, with the lowest score obtained with a score of 9 out of 10 on the indicators of the truth of the substance of the material and the accuracy of the examples in clarifying the material. In language feasibility, it gets a total score of 37 out of 40, with the ninth indicator related to the clarity of the delivery of video information getting a perfect score of 10. In contrast, the other three indicators score 9 out of 10. In the aspect of presentation feasibility, it gets a perfect total score of 30 out of the three indicators. And the last is the aspect of conformity, with the culture-based RME approach getting a score of 27 out of 30, with the three statements getting a score of 9 out of 10 each.

Overall, it is known that the lowest indicator assessment is in the agree category (S), with the lowest score being 5 out of 10 on eight indicators spread over three aspects. Furthermore, based on the results of calculations from material expert assessment data on learning videos, a total average of 4.75 was obtained, and by taking into account the guidelines for the validity categorization criteria in Table 2, it can be seen that the total average was included in the very valid criteria $4{,}2 \leq \bar{x} \leq 5$.

The second data analysis is on the media expert's assessment results. The results at this stage were obtained by analyzing the data from the evaluation of two media experts on learning videos, which consisted of three aspects and 11 questions. The following is media expert validation data:

Table 8. Media Expert Validation Results

Assessment Score on Each Aspect	Validator	
	Lecturer	Mathematics Teacher
Language Eligibility	15	15
Serving Eligibility	14	15
Graphical Eligibility	23	24
Total Score	52	54
Average	4,73	4,91
Total Average	4,82	

Based on the results of the media expert's assessment, it is known that the total score of the assessment given by the validator on the language feasibility aspect gets a perfect score of 30 on the three indicators. In the aspect of presentation feasibility, it gets a total score of 29 out of 30, with the lowest score obtained with a score of 9 out of 10 on the fourth indicator, namely the attractiveness of learning videos for students. And the last is the aspect of the feasibility of graphics which gets a total score of 47 out of 50, with three indicators related to the use of illustrations, font size, and display design in learning videos, getting a score of 9 out of 10.

Overall, it is known that from the assessment of each indicator, the lowest is in the agree category (S), with the lowest score being 9 out of 10 on four indicators spread over three aspects. Furthermore, based on the results of calculations from media expert assessment data on learning videos, it was obtained a total average of 4.82, and by taking into account the guidelines for the validity categorization criteria in table 2, it can be seen that the total average is included in the very valid criteria $4{,}2 \leq \bar{x} \leq 5$.

Based on the results of the analysis of the validity of the video obtained from the validation of material experts and media experts, it can be concluded that the learning video with a culture-based RME approach on the material congruence and similarity of class IX is declared very valid for use in learning.

Practical data analysis

The results at this stage were obtained by analyzing the data from students' questionnaire responses to learning videos related to their practicality, which consisted of three aspects and 11 questions. The results of the practical data analysis of learning videos are divided into two test results, namely:

The small-class trial results of this data obtained through trials of four students of class IX A related to their responses to learning videos are as follows:

Table 9. Small Class Trial Results

Student	Assessment Score on Each Aspect			Total Score
	Belief	Linked	Attention	
Student 1	14	19	17	50
Student 2	14	20	17	51
Student 3	14	20	17	51
Student 4	14	18	18	50
Total Score				202
Percentage = 91,82%				

Based on the results of the questionnaire assessment by four students in the small class test, it is known that the total score of the assessment given to the attention aspect gets 56 out of 60, with the lowest score found in the third indicator. In the linkage aspect, it got a total score of 77 out of 80, with the lowest score obtained on the sixth indicator. The last is the belief aspect which received a total score of 69 out of 80, with the lowest score being on the tenth indicator, namely increasing motivation to achieve. And the highest score in that aspect was found in the eighth indicator related to video learning, which can provide convenience in learning the concept of material.

Overall, it is known that in the indicator section, the lowest assessment from students is given in the Neutral (N) category, with the lowest score being 16 out of 20 on the third and tenth indicators. Based on the questionnaire calculation of four students in class IX-A, a total score of 202 was obtained, with a percentage reaching 91.82%. Considering the practicality categorization criteria guidelines in table 3, the percentage results included in the very practical criteria (80%≤NP≤). 100%).

The Large-class trial results of this data obtained through trials of 26 students of class IX A related to their responses to learning videos are as follows:

Table 10. Large Class Trial Results

Total Score of All Students' Assessment in Each Aspect			Total Score	Percentage
Belief	Linked	Attention		
335	414	433	1182	82,67%

Based on the results of the questionnaire assessment by 26 students in the large class test, it is known that the total score for the assessment given to the attention aspect gets 335 out of 390, with the lowest score being in an interesting and fun learning video and the highest score in the use of attractive images and illustrations. In the aspect of linkage, they got a total score of 414 out of 520, with the lowest score on the seventh indicator, namely the clarity of sound/audio in delivering material. Students revealed that interference with the sound cable associated with the LCD made the sound not heard clearly. And the last one is the aspect

of belief which gets a total score of 433 out of 520, with the lowest score found in the eighth indicator, which is related to providing convenience in learning material concepts, namely increasing motivation to achieve a score of 106 out of 130 and the highest score in this aspect getting a score of 115 out of 130 which contained in the eleventh indicator related to the ease of access to the use of learning videos without space and time limits.

Overall it is known that in the indicator section, the lowest assessment from students is given in the category of strongly disagree (STS), with the lowest score being 78 out of 130 on the seventh indicator. Based on the results of the questionnaire calculation of 26 students in class IX-A, a total score of 1182 was obtained, with a percentage reaching 82.67%. By observing the practicality categorization criteria guidelines in table 3, it can be seen that the percentage results are included in very practical criteria (80%≤NP≤ 100%).

Based on the practicality analysis of videos, it can be concluded that learning videos with a culture-based RME approach on congruence and similarity materials for class IX are very practical.

CONCLUSION

Based on the development research results using the ADDIE model and the discussion described previously, it can be concluded in three points. (1) The form of learning videos with a culture-based RME approach through the ADDIE research model is a learning video related to material congruence and similarity for students in class IX SMP. This video has been developed by first going through the step of analyzing student characteristics, needs analysis, and curriculum analysis. Then the design step by creating a content foundation and video framework, followed by the development stage to realize the making of videos using the Canva application, which is divided into four video parts. It to then implemented on students through access to YouTube and the evaluation stage of the validator and students. (2) The learning video with a culture-based RME approach related to congruence and similarity material is declared very valid after obtaining a total average of 4.75 with very valid criteria by material experts and a total average of 4.82 with very valid criteria by media experts. (3) The learning video with a culture-based RME approach related to congruence and similarity material was declared very practical after obtained a percentage of 91, 82% with very practical criteria in small class trials, and obtained a percentage of 82.67% with very practical criteria in large class trials.

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