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Development Of "DICINTA" Learning Media In Class IV Plant Parts Material Elementary School

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Abstract: The purpose of this study was to analyze the needs of teachers and students for development, describe the development design and test and prove the feasibility of the DICINTA learning media on the material of plant parts of grade IV Elementary School. The method used is the research and development (R&D) method using research steps by Sugiyono (2016: 298) limited to step 8, namely trial use. Data collection techniques in this study include: observation, interviews, questionnaires, documentation, and tests. Product feasibility is seen from the results of validation by material experts and media experts. Data collection techniques in this study include: observation, interviews, questionnaires, documentation, and tests. Canva Learning Media was developed based on a needs analysis conducted on students and teachers of grade IV in three Elementary Schools in Lasem District, Rembang Regency. The validation results of the media expert validator were 92%, and the material expert validator were 96% with a very good category. N-Gain for control class 1 was 0.26 and control class 2 was 0.25 in the low category. In experimental class 1, N_Gain 0.80 and N_Gain in experimental class 2 of 0.84 are considered high. The results of the t-test of experimental class 1 and control class 1 obtained a calculated t value of 8.58 and a t-table of 1.69. Likewise, in experimental class 2 and control class 2, the calculated t value was 8.14 with a significance level of $\alpha =$ 5%, so the t-table value was 1.68. As a result, the calculated t value (t-test) is greater than the t-table value (t-test > t-table). The results of this study can be concluded that the DICINTA media can be used in science learning for grade IV elementary school.

Keywords: Learning Media, Interactive digital, Science.

1. Introductions

The development of information technology (IT) and communication has transformed today's education. Its presence in the learning process can change the way students learn. As technology advances, teachers are no longer the only source of education today. Students can broaden their knowledge through TV shows, interactive media, YouTube, and other learning platforms, and learning can take place anywhere. According to Teni (2018, p. 171), "Learning media is a tool that can support the teaching and learning process so that the meaning and message conveyed are clearer and learning objectives can be achieved effectively." Interactive learning media such as videos, animations, games, and applications can help children learn complex concepts more easily and enjoyably. Children at the concrete operational stage will respond well to visual and audio tools to help them understand a concept (Rusman, 2013).

Based on the results of observations of the learning process and interviews conducted with fourth-grade teachers at Ngempak State Elementary School and Soditan 3 State Elementary School, Lasem District, Rembang Regency, it was obtained that the material on plant parts is only available in the form of reading in textbooks so that it is less interesting for students to learn because nowadays students are digital generation students so they are less enthusiastic in learning, students appear less active and the learning process is not yet centered on students as learning objects. In terms of media, teachers have not optimally utilized the LCD in the classroom, teachers only use maps. Meanwhile, when using plant images as media, some students appear less attentive because the media does not involve students actively in the learning process. During the learning evaluation process, the cognitive domain learning outcomes obtained by students at Ngemplak State Elementary School were only 57% above the Minimum Completion Level (KKM) while only 53% of students at Soditan 3 State Elementary School were above the Minimum Completion Level (KKM). Thus, it can be said that students' cognitive domain learning outcomes are still relatively low.

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1.1 Conceptual framework

The research results of Abdurrahman et al. (2020) stated that "interactive learning multimedia is valid and effective and can improve student learning outcomes in Integrated Social Studies." This is confirmed by the research of Dwiqi et al. (2020) who stated that "interactive learning media shows valid and effective results in improving social studies learning outcomes, making it suitable for use in the learning process." The author's reason for using the Canva for Education platform is its diverse selection of attractive designs, images, animations, and colors, and its operation is not too difficult for beginners, especially elementary school teachers.

Based on the background of the problem above, the author will develop the DICINTA (Interactive and Fun Canva Media) learning media, an innovative and interactive digital media that actively engages students in the learning process. This media uses the Canva for Education platform, which is easily accessible for teachers and students. It contains many attractive designs to support learning creativity and thus improve student learning outcomes.

1.2 Research objectives

This study aims to analyze the needs of teachers and students regarding the development of interactive digital learning media in the science subject of fourth grade students and to measure the effectiveness of the DICINTA learning media in the science subject in improving the cognitive learning outcomes of fourth grade elementary school students.

2. Methodology

2.1 Research design

This research is research and development (R&D). The researchers used the 10 steps of R&D research according to Sugiyono (2016:298), but limited it to step 8, namely product validation. The research steps developed by Sugiyono (2016) are as follows:

1. Problem Identification
   This research began with observations and interviews to identify problems encountered in the development of the DICINTA media for science subjects.
2. Data Collection
   Data collection was conducted to analyze student and teacher needs for Interactive Digital Media.
3. Product Design
   The DICINTA learning media product was designed based on an analysis of student and teacher needs, tailored to the learning material for science subjects in Grade IV Elementary Schools. The product is an interactive digital media that can be operated using a computer, laptop, or Android device connected to the internet and can access the Canva website.
4. Design Validation
   Design validation was conducted to identify deficiencies in the product design. This design validation was carried out by experts. Validation included material and media validation.
5. Design Revision
   Revisions are made based on the results of the validation assessment, suggestions, and input from experts.
6. Product Testing
   After revising the DICINTA media product design based on the assessment, suggestions, and input from experts, it is then tested in the experimental and control classes.
7. Product Revision
   After identifying weaknesses and deficiencies during the product trial phase, revisions are made to improve the product.
8. Usability Testing
   At this stage, the final learning product is ready for use.

2.2 Respondents of the study

The data sources in this study are divided into two, namely the analysis of the needs and effectiveness of DICINTA media in science learning in grade IV and the validity of the media. After grouping the data sources, the needs and media experts.

2.3 Sample how table should be placed is as below

The types of data collected from this study come from needs analysis data, validity data, acceptability data, and effectiveness data. First, data on student and teacher needs analysis. Second, data on the feasibility of DICINTA media is obtained from the results of expert validation by providing assessments, suggestions and input used to improve DICINTA media before being tested. Third, data on the acceptability of DICINTA media is obtained from the results of teacher response analysis and the results of student guided interviews. Fourth, data on the effectiveness of DICINTA media is obtained from the results of a comparison of the average pre-test and post-test scores of the control class and the experimental class. From several types of data above, it can be proven that the results of the development of DICINTA media in science learning in grade IV of elementary school are suitable for use.

3. Findings and Discussion

The results of the development of the DICINTA learning media address four issues in accordance with the existing problem formulation, namely:

1. Analysis of Teacher and Student Needs for the Development of DICINTA Learning Media for Fourth Grade Elementary School Science Subjects. This research began with an analysis of the needs for fourth grade elementary school science learning media in Lasem District, Rembang Regency. Based on observations of learning in four elementary schools: fourth grade at SDN Ngemplak, SDN 3 Soditan, SDN 1 Soditan 4A, and SDN 1 Soditan 4C, it was found that teachers and students needed interactive digital media. The researchers will develop an interactive digital media called "DICINTA" for the science subject about plant parts.

2. Development of DICINTA Learning Media for Fourth Grade Elementary School Science Subjects

The design of the DICINTA learning media was developed based on the results of the needs analysis and literature review. The media development design is depicted in the following diagram.

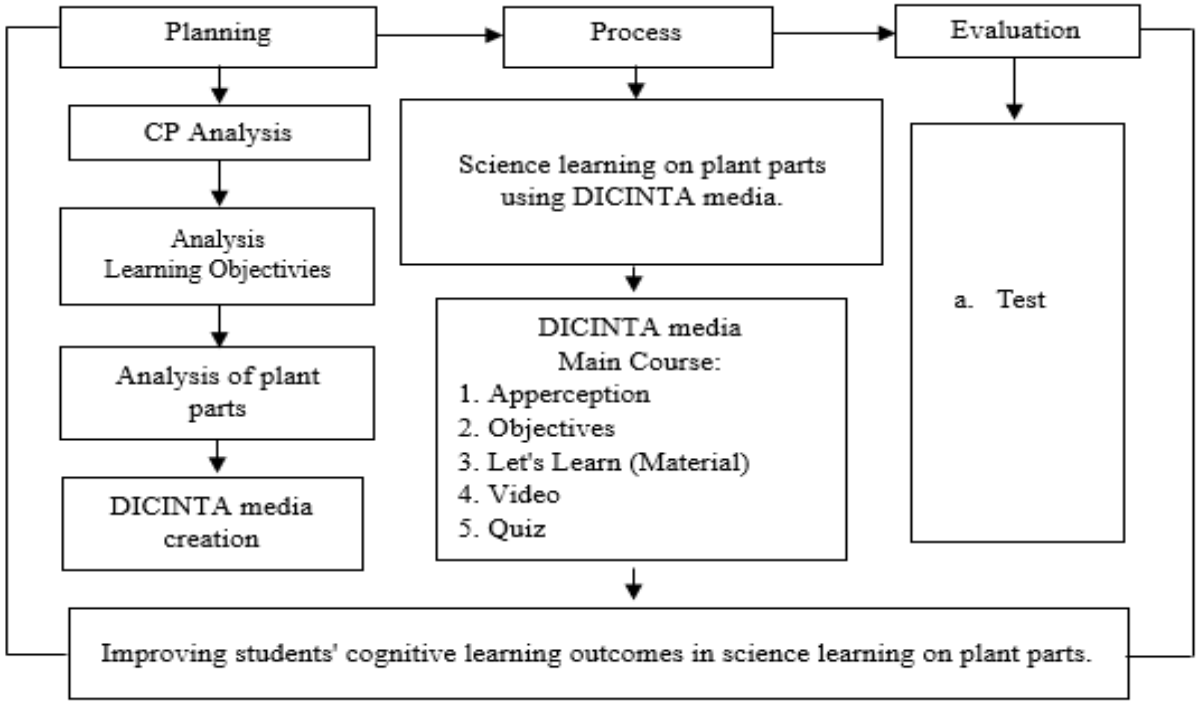


Figure 1. Research flow diagram

a. Planning

In the planning process, the steps taken by the researcher include:

1) Analysis of Learning Outcomes

The analysis of learning outcomes is conducted after analyzing media needs in science learning.

2) Analysis of Learning Objectives

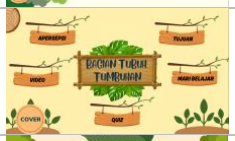
The next step is to formulate learning objectives for the science subject, specifically plant parts.

3) Analysis of Learning Materials

Analyzing learning materials aims to help students achieve learning outcomes and facilitate teachers in creating learning media. In this step, the researcher analyzed the content of the science subject, specifically plant parts.

b. Development of the DICINTA media for the science subject, specifically plant parts.

Table 1. Some displays of the DICINTA media can be seen in the following table

No	Page Name	Appearance	Information
1	Home view/ Front page		The initial display or what could be called the front page of the DICINTA media displays a cover with a plant theme.
2	Instruction		The Instructions menu contains instructions on how to operate the DICINTA media.
3	Developer Profile Information		The Developer Information Menu contains profiles of researchers or developers of DICINTA media.
4	Main page/ Home		On the main / home page there are menus that cover all the contents of DICINTA media
5	Objective		Contains the objectives of using the DICINTA media which contains material on plant parts for grade VI elementary school.
6	Apperception		Contains opening sentences and provocative questions that link to the main material.
7	Let's learn (Material)		Contains learning materials on plant parts packaged with clear and interesting image designs, animations, and sentences.
8	Videos		Contains animated videos of plant parts material
9	Quiz		Contains quizzes with questions about the material that are made interesting and given an effect if students answer correctly or incorrectly.

After the creation of the DICINTA media for the fourth grade elementary school science subject was completed, a validity test was conducted by experts. The material expert validation was carried out by Mrs. Dr. Fina Fakhriyah, M.Pd., a lecturer at Muria Kudus University, obtained a percentage of 92% with a valid category. Media validation is related to the design, ease of operation, and usefulness of the DICINTA media. Media validation was carried out by Mr. Dr. Khamdun, M.Pd., obtained a percentage of 96% with a valid category. who is a lecturer at Muria Kudus University. From the two expert validations, an average of 94% was obtained with a valid category.

The researcher conducted prerequisite tests before conducting the study, namely the normality test and the homogeneity test. The normality test in the experimental class obtained an L count of 0.192 and an L table of 0.213, while the normality test in the control class obtained an L count of 0.136 and an L table of 0.173. The results of the normality test for both sample classes showed that L count < L table, indicating that the normality test results were acceptable.

After conducting the normality test, the second prerequisite test was the homogeneity test. The average value for the experimental class was 71.86 and the average for the control class was 67.20. The variance in the experimental class was 162.917 and the variance in the control class was 212.667. The homogeneity test results obtained an F count of 0.684 with an F table of 4.38. The F count < F table result suggests that the samples of both classes are homogeneous. The effectiveness of the DICINTA media in science learning is based on a t-test between the control and experimental classes. The experimental class at SDN Ngemplak and SDN 3 Soditan used DICINTA media while the control class at SDN 1 Soditan 4A and 4C did not use DICINTA media. Amir (2014:74) stated that tests and student participation can be used to measure the success of a learning process. Based on the results of the assessment test for the plant science subject of the experimental class, at SDN Ngemplak, the initial assessment (pre-test) obtained an average score of 52.35 and increased in the final assessment (post-test) to 90.58 with a Ngain score of 0.80 and at SDN 3 Soditan the pre-test obtained an average score of 56.67 and increased in the post-test to 92.67 with a Ngain score of 0.84. In the control class at SDN 1 Soditan 4A, the initial assessment (pretest) obtained an average score of 56 and a posttest score of 70 with a ngain score of 0.26 and at SDN 1 Sodian 4C, the initial assessment (pretest) obtained an average score of 54 and a posttest score of 68.5 with a ngain score of 0.25. Another study conducted by Aulia (2014) showed that the application of interactive learning media can improve students' cognitive, affective, and psychomotor learning outcomes, with learning outcomes exceeding achievement targets. Research by Hakim (2016) showed that mathematics learning using interactive multimedia significantly influenced student learning outcomes. This is supported by research by Biassari (2021) which states that the use of interactive learning video media can improve elementary school mathematics learning outcomes. Based on the results of existing research and those conducted by researchers, it can be concluded that the use of DICINTA media can improve student learning outcomes in the fourth grade elementary school science subject.

4. Conclusions and recommendations

Analysis of the needs of teachers and students on media development in IPAS subjects is carried out using observation, interviews, and questionnaire methods. The results of the analysis show that teachers and elementary students in grade IV need interactive digital media, so researchers develop loved media.

The steps for developing metallic media in IPAS subjects are plant parts material. The first thing the researcher is doing is the analysis of learning achievements, analysis of learning objectives, analysis of learning materials, and media development design. Then the researcher designed a loved media using a Canva which was developed into an interactive digital media in which there are menus that can be operated directly by students.

The media loved is validated by material experts and media experts. The validation results of the material expert obtained a percentage of 92% with the valid category. The results of the validation of media experts obtained a percentage of 96% with the valid category. Based on the results of the validation of the two experts, loved learning media gained an average percentage of 94% with valid predicate. This means that the love media is worth use in learning IPAS Class IV Elementary School.

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Conflict of Interest

Authors declare there is no conflict of interest.

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