E - COMIC BASED ON THE CANVA APPLICATION WITH ENUMERATION RULES MATERIAL FOR 3RD GRADE HIGH SCHOOL

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Abstrak: Penelitian ini bertujuan untuk mengembangkan E-Comic berbasis aplikasi Canva sebagai media pembelajaran untuk materi kaidah pencacahan pada siswa SMA kelas 12. Metode penelitian yang digunakan adalah tinjauan pustaka, di mana studi literatur tentang penggunaan media pembelajaran interaktif dalam konteks pendidikan matematika dipertimbangkan secara mendalam. Penggunaan E-Comic berbasis Canva dipilih sebagai metode inovatif untuk meningkatkan minat dan pemahaman siswa terhadap materi kaidah pencacahan. Penelitian ini diharapkan dapat memberikan kontribusi dalam pengembangan media pembelajaran yang efektif dan menarik dalam pembelajaran matematika di tingkat SMA.
Kata kunci : *E-Comic, Canva, Kaidah Pencacahan, SMA Kelas 12, Media Pembelajaran Inovatif.*

Abstract: This research aims to develop an E-Comic based on the Canva platform as a learning media for the counting principles subject in 10th-grade high school. The research method employed is a literature review, where studies on the use of interactive learning media in the context of mathematics education are deeply considered. The utilization of Canva-based E-Comic is chosen as an innovative method to enhance students' interest and understanding of counting principles. This study is expected to contribute to the development of effective and engaging learning media in mathematics education at the high school level.
Keywords: *E-Comic, Canva, Counting Principles, 3rd Grade High School, Innovative Learning Media.*

INTRODUCTION

The evolution of digital technology which is increasingly rapid has brought many changes in various aspects of aspects of life, including in the field of education. One of the utilization of digital technology in education is the use of digital-based learning media. digital-based learning media, such as e-comic. E-comic is a digital comics that can be accessed through electronic devices such as computers, tablets, or smartphones.

The use of e-comic in learning math can be an interesting and effective alternative. effective alternative. E-comic has advantages in terms of interesting visualization and interactive. By using images, illustrations, and text presented in a digital comic format, e-comics can make math material which is often considered abstract to be more concrete and easily understood by students. understood by students. Some e-comics can be equipped with interactive features, such as quizzes, exercises, or immediate feedback. These features can assist students in testing their understanding and getting immediate feedback, thereby increasing the effectiveness of learning.

E-comic students tend to be more interested and motivated to learn math when using innovative and fun learning media, such as e-comic. The comic format that is familiar to students can increase their engagement and enthusiasm in learning the material. learning the material. Especially in conveying material that is considered difficult by students, such as enumeration rules. Rule enumeration rule is one of the one of the topics in math that discusses about how to calculate the number probability or chance of an event. A good understanding of enumeration rules will help students in solving various mathematical problems involving concepts of probability and combinatorics.

In this study, researchers developed an e-comic based on the Canva application as a learning medium for The Canva application was chosen because it has features that make it easy to make application was chosen because it has features that make it easy to create digital content, including e-comics. In addition, Canva also offers attractive templates and and attractive designs, so that can help in creating interactive and interesting e-comics for students.

The application-based e-comic development Canva-based, is expected to increase students' understanding of enumeration rules material, as well as being an alternative learning media that is interesting and effective. Thus, it is hoped that students can be more enthusiastic and motivated in learning mathematics, especially on the topic of enumeration rules. enumeration rules

RESEARCH METHOD

The research writer of this journal used the literature review method. This entails collecting and analyzing relevant literature on evaluation and assessment in mathematics learning (Rahman & Priatna, 2021). It can involve reading scientific journals, books, articles and other reliable sources to gain an in-depth understanding of the topic (Pertiwi & Marsigit, 2017).

RESULTS AND DISCUSSION

In the development of comics, this research produces canva-based digital comics in mathematics lessons with grade 12 high school enumeration rules material. This research was conducted to find out the utilization of canva as e-comic media. By making canva-based digital comics, it is hoped that students will not easily get bored while learning and will more easily understand the material of the rules of enumeration. Therefore, researchers developed interesting, interactive, innovative, and varied learning media, namely canva-based digital comics in math lessons with enumeration rules material and by developing digital comics based on the canva application it can improve students' ability to think creatively. The results showed that this digital comic media was very feasible to use with a material expert feasibility level of 94% and a media expert of 86%. The average value of the gain index also shows a significant increase in students' creative thinking skills.

This instructional media development procedure uses the 4D development model, namely Define, Design, Develop, and Disseminate. The following are the stages of product preparation in the form of e-comic learning media for math enumeration rules for 3rd grade high school.

Define

During this stage, analyze the needs or problems that include:

  a. Initial Analysis

Preliminary analysis activities in this study are analyzing literature studies regarding the material and flow of comics that will be made through comics that are already available.

  b. Student Analysis

Data analysis activities in this study are cultural study interviews with students as well as learning media that are interesting and fun in learning math.

  c. Task Analysis

Assignment analysis activities in this study are analyzing tasks that must be done and mastered by students in order to achieve the expected learning objectives, namely by completing questions on competency tests.

  d. Concept Analysis

The process of concept analysis in this study is to determine the source of literature from the results of similar studies that support the preparation and development of learning media. The source used is the research results from Aldio in Harmini (2021).

  e. Specification of Objectives

Activities of specification or formulation of learning objectives in this study are determining the learning objectives to be developed.

Design

At first, this stage carried out activities to design learning media for class 3 high school enumeration rules. At this stage there are steps including:

a. Preparation of Material

The arrangement of material in the learning media is done by identifying the learning points that exist in the material of the rules of enumeration. At this point, the researchers also limited the material to the concepts of enumeration, permutation, and combination. Materials preparation in math e-comic learning media is based on the learning objectives that have been determined at the design stage.

b. Initial Design

Initial Design at this stage, the researcher determines the storyline that will carry the concept of enumeration rules by constructing it into a predetermined plot. There are 2 main characters in the e-comic. E-comic math with enumeration rules material consists of several types of pages, including: (1) An initial page consisting of the title of the e-comic; (2) A character introduction page; (3) A learning page containing a story with the content of the concept of enumeration rules; (4) An interactive page containing questions that must be answered by students independently.

During the development research, a media is declared feasible for use in learning if it has received a feasibility test score with the results met. So at the end of the design stage, researchers made a validation instrument that contained important points to be a reference in making this math e-comic. It was in the form of a questionnaire to be tested on validators and students. Validators consisted of material experts, media experts, and practitioners, namely junior high school mathematics teachers.

Develop

At this point, the researchers started creating overall artwork like fonts, wordballs, text, backgrounds, etc. using the Canva application. The resolution of the e-comic panel used is 25×20 cm. At this stage, the researchers carried out several processes, namely

a. Design development

According to the initial design determined in the previous stage, the design development is carried out. The description in this stage is as follows: (1) On the cover of the e-comic, there is a title and background that describes the core of the math e-comic story (Figure 1). The home page is made as interesting as possible so that students will feel interested in opening and reading this math e-comic; (2)

The character introduction page shows that the main characters in this math e-comic are Bimo and Naya who are classmates. (3) A learning page that contains a story with the content of the concept of enumeration rules, namely the rules of multiplication, addition, combination, and permutation. (4) An interactive page containing questions that must be answered by students independently and a thank you. This page only contains a barcode which must be scanned independently by students.

(a)

(b)
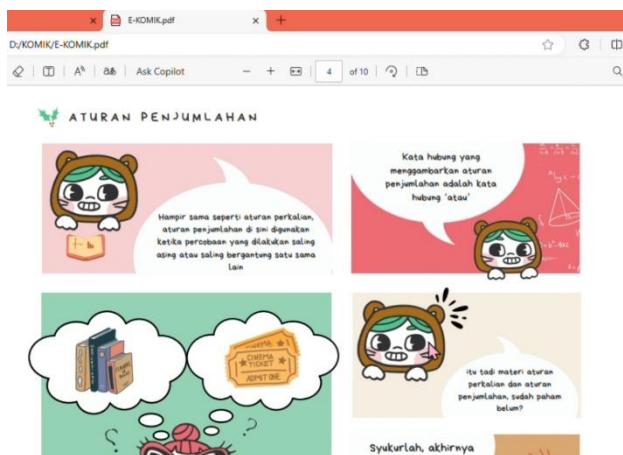
(c)

(d)

Figure 1. (a) E-Comic Cover; (b) Character introduction; (c) One of the learning pages; (d) Interactive page

CONCLUSIONS AND SUGGESTIONS

E-comic implementation developed with Canva application can have an attractive, interactive design, and in accordance with the characteristics of 12th grade high school students. Canva application offers features that allow the development of e-comic with an attractive appearance and in accordance with the needs of students. The e-comic content can include concept explanations, sample problems, and exercises presented in digital comic format. can be an effective tool in achieving this goal.

It is also imperative that teachers provide training and assistance in using the Canva application to develop e-comics as mathematics learning media. This is important so that teachers can optimally utilize e-comics in the learning process. Continuous evaluation and improvement of the e-comic that has been developed is needed to continue to improve the quality and effectiveness of learning media. This is important to ensure that e-comics remain in accordance with the needs and development of students. Thus, the implementation of Canva application-based e-comic with enumeration rules material in grade 3 high school based on further literature studies can be carried out to explore the use of e-comic in learning mathematics at various levels of education and material topics. This can enrich the understanding of the potential and application of E-comic in mathematics learning more broadly.

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