Designing Canva Media to Improve MTs Students' Understanding of Statistics Concepts

Rafika Nisa[*1]; Rosimanidar[2]; Setiawan[3]; Rahma Hayati Siregar[4]
[1,2,3,4]Program studi Tadris Matematika, Universitas Sultanah Nahrasiyah Lhokseumawe, Indonesia
Rafikanisa07@gmail.com[*1], rosi@uinsuna.ac.id[2], setiawan8872@gmail.com[3], rahmahayatisrg@uinsuna.ac.id[4]

Abstract

This study aims to produce a Canva media design to improve the understanding of statistical concepts of students in Islamic Junior High Schools (MTs), especially the material of mean, median, and mode. The research method uses a Research and Development (R&D) approach by adapting the ADDIE model (Analysis, Design, Development, Implementation, Evaluation), but the research is focused on the design stage. Data were obtained through interviews with grade IX mathematics teachers at MTsN 2 Lhokseumawe City. The results of the study are in the form of a Canva media design that contains videos, animations, images, text and audio with interactive navigation. This media is designed to make it easier for students to understand statistical concepts. The results of this design are expected to be used in further stages.

Keywords: *Canva; Statistika; ADDIE; Concept Understanding.*

Abstrak

Penelitian ini bertujuan untuk menghasilkan desain media Canva untuk meningkatkan pemahaman konsep statistik siswa di SMP Islam (SMP), khususnya materi mean, median, dan modus. Metode penelitian menggunakan pendekatan Penelitian dan Pengembangan (R&D) dengan mengadaptasi model ADDIE (Analisis, Desain, Pengembangan, Implementasi, Evaluasi), tetapi penelitian difokuskan pada tahap desain. Data diperoleh melalui wawancara dengan guru matematika kelas IX di SMP N2 Kota Lhokseumawe. Hasil penelitian berupa desain media Canva yang berisi video, animasi, gambar, teks, dan audio dengan navigasi interaktif. Media ini dirancang untuk memudahkan siswa memahami konsep statistik. Hasil desain ini diharapkan dapat digunakan pada tahap selanjutnya.

Kata Kunci: Canva; Statistika; ADDIE; Pemahaman Konsep.

*Correspondence:
Email: Rafikanisa07@gmail.com

INTRODUCTION

The development of digital technology has brought significant changes to various fields, including education. Technology-based learning media is now not just a tool but a crucial part of improving the quality of learning(Nurillahwaty, 2021). In the context of mathematics learning, technology plays a strategic role in simplifying abstract concepts into more concrete and easier for students to understand (Aji Silmi & Hamid, 2023).

Statistics is a challenging topic for students at the Madrasah Tsanawiyah (MTs) level. This material encompasses concepts such as mean, median, and mode, which require understanding beyond simply memorizing formulas. Students are required to interpret data and relate these concepts to real-world situations. However, the facts show that students' understanding of statistical concepts in Indonesia is still relatively low(Juliana & Hidayat, 2021). This low understanding is partly due to the dominance of memorization over understanding the meaning of the material (Septian et al., 2022), the minimal use of interactive learning media, and limited efforts to relate the material to everyday experiences (Utami, 2025).

The Trends of Mathematical and Science Studies (TIMSS) report and several national studies (Setiawan et al., 2023) This also reinforces the finding that students still struggle to understand mathematical concepts, including statistics. At MTsN 2 Lhokseumawe City, interviews with ninth-grade mathematics teachers showed that students struggled to understand the basics of mean, median, and mode. The teacher also stated that limited technological proficiency was one reason digital-based learning media was rarely used. As a result, learning became less engaging, less interactive, and did not fully accommodate students' diverse learning styles.

In fact, interactive learning media that combines elements of video, text, images, animation and audio has been proven to be able to improve students' understanding of concepts. (Fransiskus et al., 2022). This type of media can accommodate various learning styles and help students understand material with more realistic representations. One platform with great potential for development

as an interactive learning medium is Canva (Samosir & Hafizah, 2023). Canva has a simple, flexible interface and supports the integration of various media elements in one design (Oni et al., 2024). Canva's potential is reinforced by research that shows the effectiveness of Canva-based interactive learning media in improving MTs students' understanding of statistical concepts (Nisa et al., 2025).

Canva-based learning media can be developed using the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model framework. This model provides systematic guidance and addresses the basic stages of media development design. (Purnamasari, 2019), so that the media produced is relevant to student characteristics and learning objectives.

Based on this description, this study aims to design Canva media to improve MTs students' understanding of statistical concepts, focusing on the concepts of mean, median, and mode. This study is limited to the analysis and design stages of the ADDIE model, thus providing a basis for the development, implementation, and evaluation stages in subsequent research.

RESEARCH METHODS

This research uses the Research and Development (R&D) method, adapting the ADDIE development model. ADDIE, developed by Dick and Carry, refers to the main points of the development process: Analysis, Design, Development, Implementation, and Evaluation. (Mulyatiningsih., 2012). This model has been proven effective in previous research which also used the ADDIE model to develop Canva-based interactive learning media (Nisa et al., 2025). However, this research was only conducted up to the second stage, namely the design stage. The research subject was one ninth-grade mathematics teacher at MTsN 2 Lhokseumawe City. Subject selection was carried out purposively to obtain information related to student difficulties and learning media needs. Data collection was obtained through semi-structured interviews, data were analyzed descriptively qualitatively to identify media needs and formulate learning designs
In the analysis stage, the researcher conducted interviews with grade IX mathematics teachers at MTsN 2 Lhokseumawe City to gather information

regarding students' difficulties in understanding statistics material, limitations of the learning media used so far, student characteristics, characteristics of preferred media, learning styles, and accessibility.

The design stage involves writing down ideas into a formula that describes the learning media in detail. The design formulation for interactive learning media can be developed using flowcharts and storyboards (Batubara, 2018).

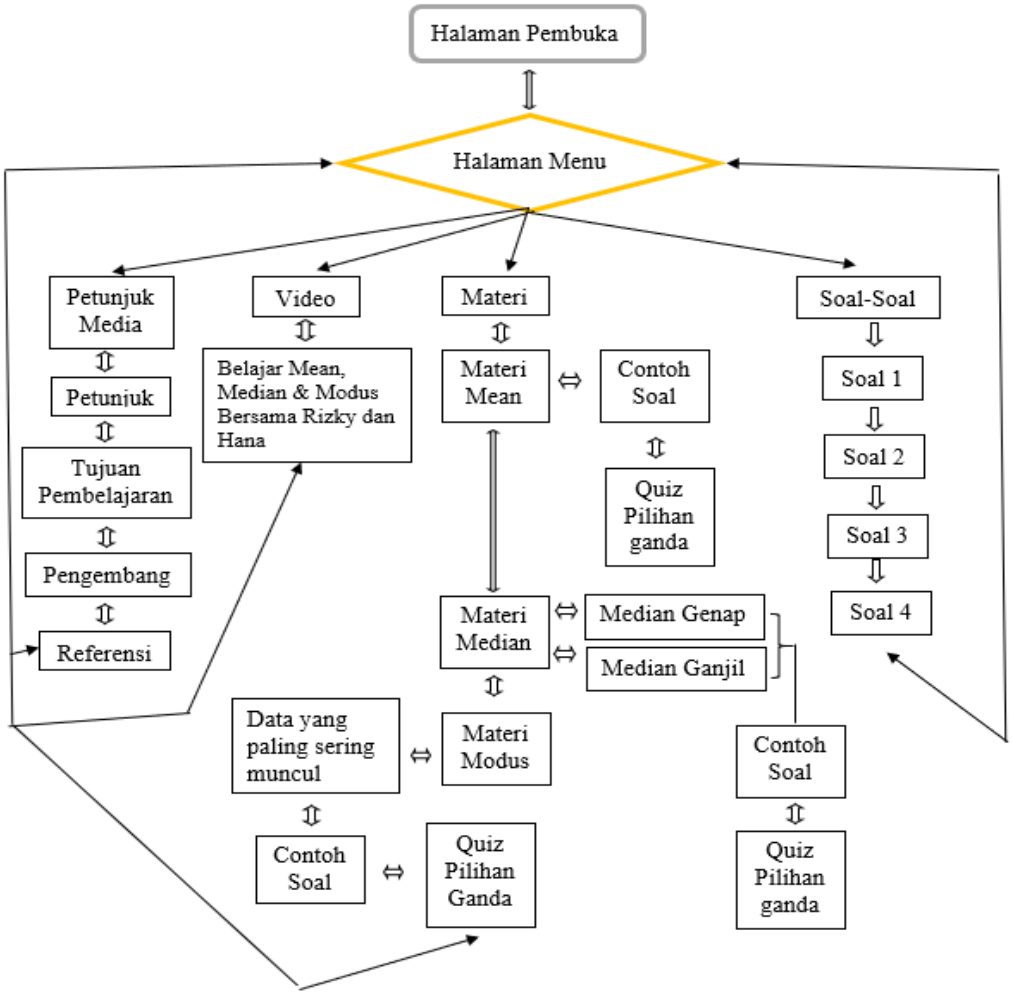


Figure 1. Flowchart Format Chart

The storyboard format can be seen in the table below:

Table 1. Format Storyboard

Page Name	Content	Content Description
Welcome Page	Material title, school setting, start button	Makes it easier to navigate to the main menu
Main Menu Slide	4 buttons: Media instructions, video, material, questions	Each button has a hyperlink to the related page.
Media Instructions Slide	4 buttons: Instructions, objectives, developers, and references	Provides information about media usage
Video Slide	Animated video (Rizky and Hana explain mean, median, and mode)	Explaining concepts through everyday illustrations
Material Slide	3 options: Mean, Median, Mode	Each section has examples and a simple Quiz.
Questions Slide	Descriptive questions	Tests students' conceptual understanding of the concepts they have learned. There are 4 questions.

RESULTS AND DISCUSSION

1. Analysis
   a. Problem Identification

      An interview was conducted with a grade IX mathematics teacher at MTsN 2 Lhokseumawe City. The interview aimed to determine the obstacles experienced by students in understanding statistical material, especially on the concepts of mean, median, and mode. Based on the interview results, it was found that students had difficulties in several important indicators, namely: Classifying Objects (Classifying), Applying Concepts or Finding Patterns (Inferring), Indicators Giving Examples and Non-Examples (Exemplifying), Indicators Restating Concepts (Interpreting).

   b. Limitations in the Use of Technology Media

      Furthermore, interviews with teachers revealed limitations in the use of technology in learning. Teachers rarely incorporate technology into

their learning because they feel unfamiliar with it and are not yet proficient in applying it. Teachers stated that the current learning methods are less engaging and the limited use of visual media to support student understanding, particularly in statistics, has resulted in less interactive learning and insufficient support for students' understanding of concepts in a fun way.

c. Desire for Technology-Based Learning

However, interviews revealed that students expressed a desire to learn through technology-based learning media. Teachers also stated that using interactive learning media, such as Canva, can increase students' interest in statistics and help them understand difficult concepts.

d. Student Characteristics

Based on the results of interviews with teachers and observations of the conditions of class IX students at MTsN 2 Kota Lhokseumawe, there are several important characteristics that form the basis for developing media.

1) Cognitive and Language Development

Students are at the formal operational stage, where they begin to think logically and abstractly. However, to understand statistical concepts like mean, median, and mode, they still need visual aids and contextual explanations to facilitate comprehension. Simple academic language supported by illustrations or real-life examples greatly aids student understanding.

Students prefer media that combines images, color, animation, video, and sound. Interactive media is more engaging because it creates a learning environment that isn't monotonous or boring.

2) Learning Style

Students have diverse learning styles. Visual learners prefer to understand through images, diagrams, colors, and other visual displays. Auditory learners prefer to absorb material through verbal or audio explanations. Kinesthetic learners prefer hands-on, interactive activities.

Therefore, learning media that combine visual, audio, and interactive elements are ideal for addressing these diverse learning styles.

3) Accessibility

While not all students have personal devices, most have access to mobile phones. The school also provides projectors and internet connections to support the use of digital learning media.

4) Ability to Operate Media

Students are also used to using digital devices such as smartphones and basic learning applications, so they are able to access and operate Canva-based media quite well. Simple navigation and an attractive interface make it easier for students to use media independently.

5) Institutional Support and Available Resources

Based on interviews and observations, MTsN 2 Kota Lhokseumawe provides good support for technology-based learning. The school provides facilities such as LCD projectors, a stable electricity network, and smartphones that students can use. The school demonstrates a positive attitude toward learning, including the development of media that can increase student engagement and understanding in mathematics.

6) Types of Potential Media to Support Learning

Considering the student population and available resources, the most potential and relevant learning media to be developed at this school are interactive visual media that are easy to use and accessible online. Media such as interactive PowerPoint presentations, instructional videos, and interactive Canva are options being implemented at the school. Canva is the most ideal choice because it combines images, animations, text, and videos in one attractive display. It can be used online, is simple in design, and is user-friendly for both teachers and novice students.

7) Basic Ideas for Media Development

Based on the analysis, interactive learning media based on Canva was developed to support the learning of statistics, specifically

mean, median, and mode. The media was designed with a visual and interactive approach, enabling students to understand abstract concepts in a more concrete and engaging way. The use of images, animation, video narration, and interactive practice questions are key components of this media, tailored to students' visual, kinesthetic, and partially auditory learning styles.

The use of Canva media in the learning process is expected to be more engaging, efficient, and effective, and to enhance students' understanding of mathematical concepts.

2. Design

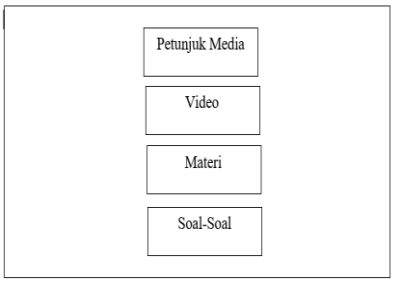
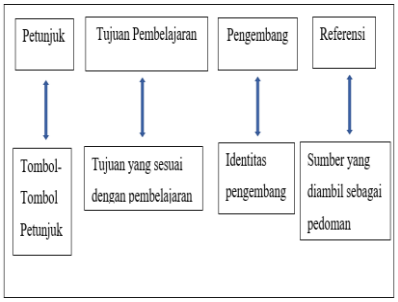
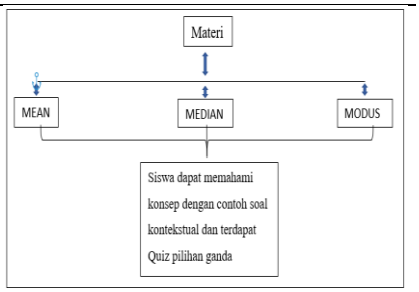
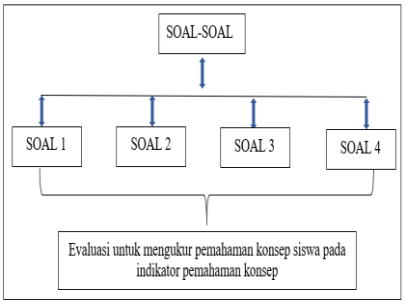
Researchers created an interactive learning media design based on the data presented in Figure 1, using a flowchart and storyboard. The resulting media design consisted of several steps, as shown in Table 2.

Table 2. Media Design Results

Type	Result
Media content design	a. Media contains material on the mean, median and mode of everyday life and improves understanding of the concept. b. Media is equipped with main menus, instructions, videos, materials, questions. c. The media is equipped with interactive buttons. d. Media is equipped with images, videos, audio, text, animations related to the material.

Design Results in Media

Name Design	Content	Information	Result
Opening Page View	Material title, school background, start button	Makes it easier to navigate to the main menu	

Main course	4 buttons: Media instructions, videos, materials, questions	Media guide, videos, materials, questions	
Media Instructions	4 buttons: Instructions, goals, developers and references	Provides information about media usage	
Video	Animated video (Rizky and Hana explain about mean, median and mode) with dialogue	Explaining concepts through everyday illustrations, namely student test scores.	In this video, Rizky and Hana teach students about mean, median, and mode through a lighthearted story that relates to everyday life. Engaging animation and engaging dialogue help students learn without getting bored.
Material	3 Options: Mean Median Mode	Each section has examples and a simple Quiz.	
Questions	Essay Questions	Testing students' conceptual understanding of the concepts they have learned	

This design aligns with findings that interactive learning media, a combination of video, animation, images, and audio, can enable users to interact and understand the material because the learning is engaging, interactive, and effective. Media that combines visuals, text, audio, and animation can improve conceptual understanding (Dolo et al., 2022). This aligns with research showing that using interactive learning media with Canva is feasible and effective in improving MTs students' understanding (Nisa et al., 2025).

CONCLUSION

This research resulted in the design of a Canva-based interactive learning media that can be used to help improve MTs students' understanding of statistical concepts. This media was designed based on the results of an analysis of student and teacher needs and follows instructional design principles consistent with the design stages of the ADDIE model. It is hoped that this media can be an alternative solution for more engaging and effective statistics learning.

SUGGESTION

Further research is recommended to proceed to the development, implementation and evaluation stages to test the effectiveness of Canva media in improving students' understanding of statistical concepts.

REFERENCES

Aji Silmi, T., & Hamid, A. (2023). Urgensi Penggunaan Media Pembelajaran Berbasis Teknologi. *Inspiratif Pendidikan*, *12*(1), 69–77. https://doi.org/10.24252/ip.v12i1.37347

Batubara, H. H. (2018). Model Penelitian dan Pengembangan Media Pembelajaran. *Media Pembelajaran Efektif*, *November*, 82.

Dolo, F. X., Kua, M. Y., & Djawaria, P. Y. (2022). *Meningkatkan Pemahaman Konsep Siswa dengan Multimedia Interaktif pada Materi Pemantulan Cahaya*. *6*(1992), 484–489. https://doi.org/10.31004/jptam.v6i1.2935

Hafizah, Z., & Samosir, K. (2023). Pengembangan Media Pembelajaran Interaktif Berbasis Aplikasi Canva untuk Meningkatkan Kemampuan Pemecahan Masalah Matematis Siswa Kelas VIII SMP Nurul Islam Indonesia Medan. *Nautical : Jurnal Ilmiah Multidisiplin*, *2*(1), 42–51. https://doi.org/https://jurnal.arkainstitute.co.id/index.php/nautical/index

Juliana, H. S., & Hidayat, W. (2021). Analisis Kesalahan Siswa MTs Kelas VIII Di Bandung Barat pada Materi Statistika. *JPMI: Jurnal Pembelajaran Matematika Inovatif*, *4*(5), 1357–1364. https://doi.org/10.22460/jpmi.v4i5.1357-1364

Muhammad, I., Mukhibin, A., Naser, A. D. muhamad, & Dasari, D. (2022). Bibliometric Analysis: Research Trend of Interactive Learning Media in Mathematics Learning in Indonesia. *Prisma Sains : Jurnal Pengkajian Ilmu Dan Pembelajaran Matematika Dan IPA IKIP Mataram*, *11*(1), 10. https://doi.org/10.33394/j-ps.v11i1.6595

Mulyatiningsih., E. (2012). *Riset Terapan Bidang Pendidkian dan Teknik*. Yogyakarta: NY Press.

Nisa, R., Rosimanidar, & Setiawan. (2025). Development of Canva-Based Interactive Learning Media to Enhance MTs Students' Understanding of Statistical Concepts. *Ar-Riyadhiyya*: Jurnal Pendidikan Matematika. 6(1), 21-33. https://journal.iainlhokseumawe.ac.id/index.php/arriyadhiyyat/article/view/6227

Nurillahwaty, E. (2021). Peran Teknologi dalam Dunia Pendidikan. *Jurnal Keislaman Dan Ilmu Pendidikan*, *3*(1), 123–133. https://doi.org/10.36088/islamika.v3i1.1047

Purnamasari, N. L. (2019). Metode Addie pada Pengembangan Media Interaktif Adobe Flash pada Mata Pelajaran TIK. *Jurnal Pendidikan Dan Pembelajaran Anak Sekolah Dasar*, *5* (1), 23–30. https://doi.org/10.29100/jpsd.v5i1.1530

Savitri, O., Sudarman, & Sutrisno. (2024). Pengembangan Media Pembelajaran Interaktif berbasis Canva pada Mata Pelajaran Ekonomi kelas X SMA Negeri 16 Samarinda. *Jurnal Ilmiah Wahana Pendidikan*, *10*(8), 1072–1085. https://doi.org/10.5281/zenodo.11171911

Septian, A., Inayah, S., & Putri, M. M. (2022). Peningkatan Kemampuan Pemahaman Konsep Matematika Siswa Melalui Model Pembelajaran Flipped Classroom. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *11*(4), 2787. https://doi.org/10.24127/ajp m.v11i4 .5815

Setiawan, S., Julrissani, J., & Savira, L. (2023). Analisis Kemampuan Pemahaman Konsep Matematis Siswa Pada Materi Bangun Ruang Sisi Datar. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, *12*(1), 80. https://doi.org/10.24127/ajpm.v12i1.5106

Utami, Y. (2025). Faktor-faktor yang mempengaruhi rendahnya pemahaman konsep matematika pada siswa SD. *DIKMAT: Jurnal Pendidikan Matematika*, *06*(01), 17–21. https://doi.org/https://doi.org/10.56842/dikmat.v6i01.507