

Research Article

Development of Audiovisual Learning Media Using Interactive Powerpoint to Improve Student Activity and Learning Outcomes in Grade X Economics Classes

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Abstract: This study aims to develop interactive PowerPoint-based audio-visual learning media for Grade X Economics and to test its feasibility and effectiveness in improving student activity and learning outcomes. The method used is Research and Development (R&D) with the ADDIE model, which includes the stages of analysis, design, development, implementation, and evaluation. The research subjects consisted of students in grades X6 and X7 at SMA N 1 Ngluar and SMA Muhammadiyah 1 Muntilan. Data were collected through interviews, questionnaires, and learning outcome tests. The feasibility test results showed that the interactive PowerPoint media was considered very feasible to use, with an average score of 4.6 from subject matter experts, 4.8 from media experts, 4.45 from teachers, and 4.5 from students. The effectiveness test showed N-Gain Scores for activity and learning outcomes of 0.42 and 0.58, respectively, at SMA N 1 Ngluar and 0.44 and 0.55 at SMA Muhammadiyah 1 Muntilan. Thus, interactive PowerPoint media is effective in increasing student activity and learning outcomes in economics learning.

Keywords: Audiovisual Learning; Economics Classes; Interactive Powerpoint; Learning Activity; Learning Outcomes

1. Introduction

The Industry 5.0 era places technology at the center of various aspects of life, including education. Education plays an important role in shaping independent and competitive individuals in line with the needs of the times (Sudjana, 2020). However, the learning process in schools still largely uses conventional teacher-centered methods, so that student activity and learning outcomes are not yet optimal. Generation Z, as today's students, are tech-savvy and tend to prefer visual and interactive learning (Syah & Hidayatullah, 2023). Therefore, technology-based learning media that suits their characteristics is needed. Interactive PowerPoint is one effective medium because it can combine text, images, audio, and video, thereby encouraging active student engagement (Aini & Listiningsih, 2021).

Observations at SMA N 1 Ngluar and SMA Muhammadiyah 1 Muntilan show that most students have not achieved the Minimum Completion Criteria (KKM) and tend to be passive in economics learning. This indicates the need for innovative, engaging, and interactive learning media to increase student activity and learning outcomes. Previous studies have proven that interactive learning media can increase student motivation and conceptual understanding (Arsyad, 2019; Riyana, 2020). Therefore, the development of interactive digital PowerPoint-based audiovisual media is expected to be a solution in increasing the activity and learning outcomes of 10th grade students in economics.

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The rapid development of the Industry 5.0 era places technology as the foundation of daily human activities, including in the field of education. This era prioritizes the integration of digital technology and human-centered innovation to create adaptive and competitive generations. Education plays a crucial role in preparing students who are responsive to global demands, capable of critical thinking, and ready to compete in the digital era (Sudjana, 2020). However, these expectations are often not aligned with learning practices in schools, which still tend to adopt conventional approaches. As a result, the learning process becomes less interactive, monotonous, and does not fully support students' cognitive and affective development.

In many learning environments, conventional teacher-centered methods still dominate classroom interactions. Teachers function as the main providers of knowledge, while students become passive recipients who only listen and record information. This condition limits opportunities for student participation and creativity. As a consequence, learning outcomes tend to stagnate and do not reach the expected competency standards. Passive learning behaviors, low motivation, and minimal collaboration indicate that learning methods urgently require innovation to support active and meaningful engagement.

Alongside these challenges, the demographic profile of students needs to be considered. Today's learners belong to Generation Z, a generation deeply familiar with technological devices and digital platforms. They tend to prefer visual, dynamic, and interactive learning approaches (Syah & Hidayatullah, 2023). Traditional delivery methods often fail to capture their attention, resulting in boredom and decreased learning enthusiasm. Therefore, the use of media that aligns with their characteristics is essential to foster productive and enjoyable learning experiences.

Technology-based learning media have become increasingly utilized to support educational innovation. Among them, Interactive PowerPoint emerges as a promising tool because it offers flexibility in combining text, images, audio, video, animations, and interactive navigation buttons. These features can enhance students' visual comprehension, maintain their interest, and improve retention of subject matter (Aini & Listiningsih, 2021). When properly designed, interactive PowerPoints can serve not only as presentation slides but also as multimedia platforms that stimulate active student engagement.

Observations conducted at SMA N 1 Ngluar and SMA Muhammadiyah 1 Muntitan indicate that students in Grade X Economics classes frequently fail to meet the Minimum Completion Criteria (KKM). Additionally, classroom activities show that students are often passive, reluctant to ask questions, and hesitant to express opinions. These conditions hinder meaningful learning, especially in economics, which requires analytical ability and contextual understanding. The lack of engaging learning media further contributes to students' low cognitive outcomes and classroom interaction levels.

Previous research confirms that the use of interactive and audiovisual media can positively influence students' motivation, conceptual understanding, and learning outcomes. Studies by Arsyad (2019) and Riyana (2020) demonstrate that multimedia-based learning increases attention spans and helps students better understand abstract concepts. This evidence reinforces the need for innovation in teaching media that integrates visual stimulation, interactivity, and user control to enhance both learning processes and results.

Considering these challenges, the development of audiovisual learning media using Interactive PowerPoint is expected to provide solutions tailored to the learning needs in economics subjects. By utilizing audiovisual elements, this media can support the delivery of complex economic concepts in a simpler, more contextual, and more attractive manner. Moreover, interactive quizzes, hyperlinks, and navigation features embedded in the media can foster two-way communication between students and learning materials, thus improving activeness and comprehension.

2. Preliminaries or Related Work or Literature Review

2.1. Grand Theory

The use of interactive PowerPoint in economics learning is based on the theories of Cognitivism (Piaget & Bruner, 1966), Constructivism (Vygotsky, 1978), Behaviorism (Skinner, 1957; Pavlov, 1927), Gagné's learning theory (1985), and Educational Technology theory (Heinich, Molenda, & Russell, 1993). This medium helps students process information (cognitivism), build understanding through interaction (constructivism), increase motivation through reinforcement and quizzes (behaviorism), attract attention and provide feedback (Gagné), and make learning more interesting and effective (educational technology).

2.2 Learning Activity

Learning activity is the physical and mental involvement of students in the learning process (Bariyah, 2022). According to Hamalik (Rizal & Nuriza, 2025), activity is demonstrated through student participation in assignments, discussions, questions, and presentations. Thus, students play an active role in achieving learning objectives.

2.3 Student Learning Outcomes

Learning outcomes are changes in abilities that encompass cognitive, affective, and psychomotor aspects as a result of student involvement in the learning process (Herawati, 2020). According to (Zainuddin & Ubabuddin, 2023), learning outcomes reflect improvements in knowledge, attitudes, and skills acquired through learning experiences. Thus, learning outcomes can be interpreted as indicators of student success in achieving learning objectives through changes in knowledge, attitudes, and behavior.

2.4 Learning Media

Learning media are tools or intermediaries for conveying messages from teachers to students in order to make learning more effective (Mahardika & Wiranda, 2021; Nurfadhillah, 2021). According to AECT (in Heinich & Molenda, 2008), media include all forms of means of conveying messages. Thus, learning media serve to help teachers transfer knowledge so that students can understand the material more easily.

2.5 Interactive PowerPoint Media

Interactive PowerPoint is a Microsoft PowerPoint-based learning medium that presents material in an engaging and interactive way through text, images, videos, and quizzes (Hasanah, 2020). This medium makes it easier for teachers to deliver material and encourages students to be more active, thereby increasing engagement and learning outcomes.

2.6 Economics Education

Economic education helps students understand how to manage resources to achieve prosperity (Sukirno, 2016). According to Kurniawan and Budhi (2015), economics studies economic decision-making, while Chien (2022) emphasizes the importance of understanding global dynamics. Thus, economic education equips students to think critically and play an active role in economic activities.

2.7 Framework

This study developed interactive PowerPoint-based audiovisual learning media as an innovation to create interesting, active, and effective learning, thereby increasing student activity and learning outcomes.

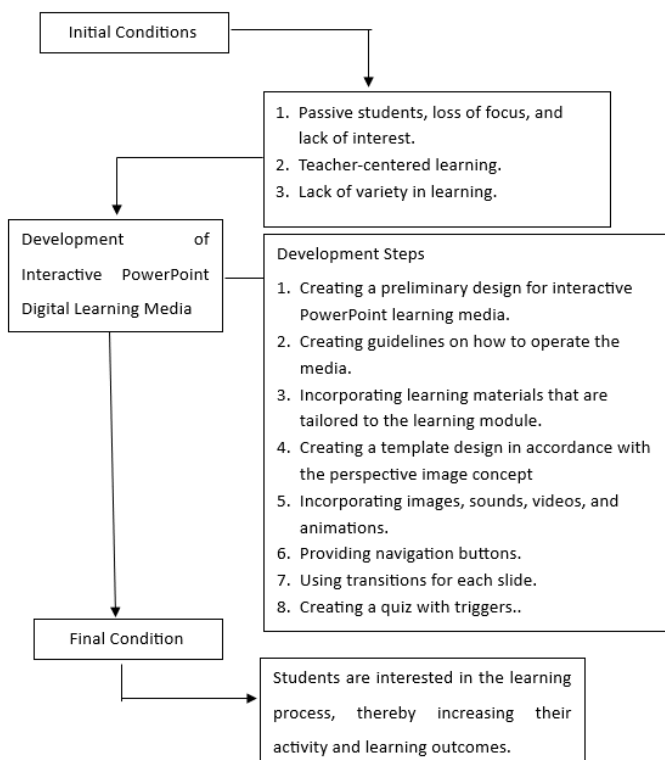
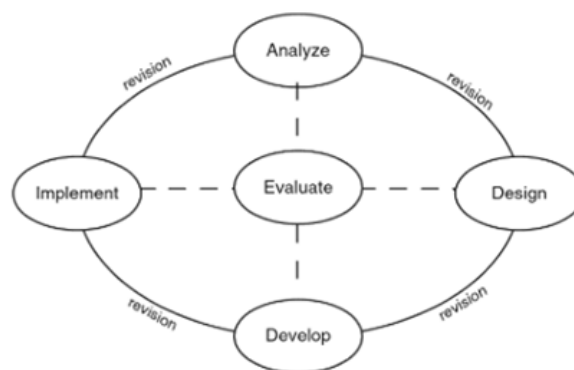


Figure 1. Conceptual Framework

3. Materials and Method

3.1. Development Model

This study uses the Research and Development (R&D) method with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model (Branch, 2009) because it is systematic in developing learning media. The product developed is interactive PowerPoint-based audiovisual media on Economic Activities for 10th grade students at SMAN 1 Ngluar and SMA Muhammadiyah 1 Muntilan.



Source: Branch, (2009)

Figure 2. ADDIE Development Procedure

3.2. Population and Sample

The research population consisted of all tenth-grade students in both schools. The sample was taken using purposive sampling (Campbell et al., 2020) with the criterion of students studying economic activity material. Each school involved two classes, namely class X-7 as the experiment (interactive PowerPoint) and class X-6 as the control (regular PowerPoint), each with 36 students per class.

3.3. Data Collection Techniques and Instruments

In this study, the data collection instruments used were observation, interviews, questionnaires, learning outcome tests, and documentation.

4. Results and Discussion

4.1. Initial Product Development Results

This research produced interactive PowerPoint-based audiovisual learning media for 10th grade economics classes. Development was carried out using the ADDIE model (Analysis, Design, Development, Implementation, Evaluation).

4.1.1. Analysis Stage

During the analysis stage, it was found that economics learning still uses conventional media, which is not very interesting. Interactive media that combines images, videos, animations, and quizzes is needed to make students more active and improve learning outcomes. The material is adapted to the Merdeka Curriculum, particularly on the topic of Economic Activities, which covers production, distribution, consumption, and the role of economic actors in the economic system. The analysis also shows that technological facilities in schools are adequate, with most students having digital devices to support learning.

4.1.2. Design Stage

The design stage is carried out to develop the initial concept of interactive PowerPoint learning media based on the analysis results. The material used is economic activities (production, distribution, consumption, and the role of economic actors) in accordance with the teacher's handbook and curriculum. The media is designed with interactive menus such as preliminary, content, discussion, conclusion, and quiz, equipped with text, video, animation, and hyperlinks between pages. In addition, validation instruments are developed, including assessment sheets for media experts, subject matter experts, teachers, and students to evaluate the feasibility and practicality of the product and provide input for its improvement.

4.1.3. Development Stage

At this stage, researchers create interactive PowerPoint learning media based on the results of analysis and design. The creation process includes collecting materials such as

images, animations, videos, and materials from relevant sources, then compiling them using PowerPoint version 2019 or higher with additional audio narration. Next, the media that has been created is validated by subject matter experts, media experts, and teachers to obtain feedback for improvement before being tested.

4.1.3.1 Creating Interactive PowerPoint Media Templates

Researchers created covers and main menus using shapes, images, and morph effects to make PowerPoint presentations more attractive and proportional.



Figure 3. Interactive PowerPoint Media Templates

4.1.3.2. Adjusting Object Rotation

Object rotation is adjusted through the Shape Format menu by adding an oval shape and text box for the title, as well as a special area for the menu buttons to make the cover layout neater.



Figure 4. Adjusting Object Rotation

4.1.3.3. Adding Animated Images

Animated images from the web are inserted into the template and positioned neatly and attractively, adjusting the size on each slide.



Figure 5. Image Object Settings in the Menu Button



Figure 6. Image Objects on Each Slide After Opening

To make the image move like an animation, select the object, open the Animations menu, then select the Lines effect and set the direction of movement as needed.



Figure 7. Animation Setting Process

4.1.3.4. Using Morph Transitions

The next step is to add Morph transitions to make the presentation more interesting. This feature is available in PowerPoint 2019 and above based on Microsoft 365.



Figure 8. Morph Transitions

4.1.3.5. Creating Navigation Buttons

PowerPoint is considered interactive if there is two-way interaction between the media and the user (Trimansyah, 2021). Navigation buttons such as back, next, home, and close are created using the Insert → Action → Hyperlink to feature according to their respective functions.

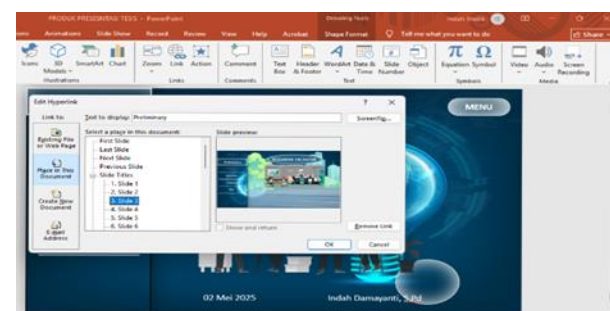


Figure 9. Adding Hyperlinks and Sound Effects

4.1.3.6. Incorporating Learning Materials

The materials come from student books on economic activities, are tailored to learning outcomes, and are presented in easy-to-understand language.

4.1.3.7. Inserting Voiceovers

Voiceovers are inserted using the Insert → Audio → Record Audio feature in PowerPoint. After recording, set the audio playback on the Playback tab to Automatically or On Click, then repeat on each slide.



Figure 10. Voiceover

The audio is set through the Animation → Animation Pane menu, then adjusted according to the order in which the material appears. Set the Start With Previous option so that the audio plays automatically according to the session.

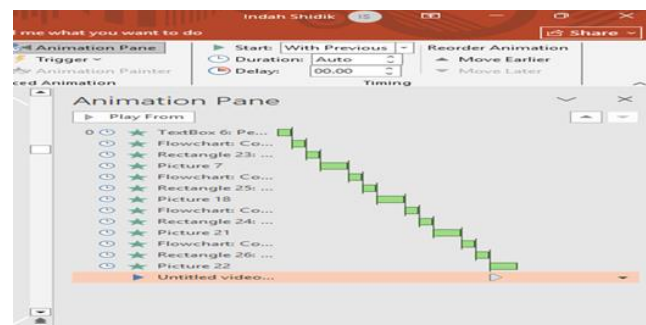


Figure 11. Audio Playback Settings

4.1.3.8. Creating Interactive Quizzes

The final part of the media contains interactive multiple-choice quizzes with automatic feedback for correct and incorrect answers. The response animation is set using the trigger feature in the animation pane menu so that it appears according to the user's choice.



Figure 12. Multiple Choice Answer Creation Process

The use of triggers is combined with answers and feedback animations by selecting an animated image, then in the trigger menu, select on click of and determine the correct or incorrect answer according to the animation displayed.

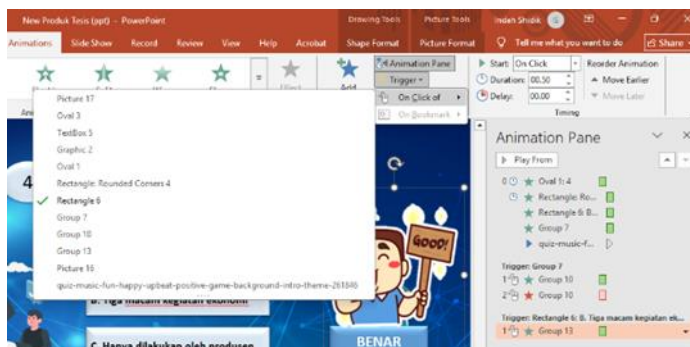


Figure 13. Trigger Setting Process

The trigger feature allows the media to display automatic feedback, so that users immediately know the correct or incorrect answer after answering the quiz.

4.1.3.9. Media Validation

The next stage of development is media validation by media experts, material experts, and learning experts. Data is obtained from questionnaires (quantitative) as well as criticism and suggestions from validators (qualitative).

4.1.4. Implementation Stage

The media was implemented in Grade X offline without the internet, with researchers observing that students appeared more focused and active.



Figure 14. Students Paying Attention to the Teacher



Figure 15. Students Active in Learning Discussions

4.1.5. Evaluation Stage

The evaluation was carried out by assessing the validity, effectiveness, and suggestions of the validators regarding the learning media.

4.1.6. Paired Sample T-Test

The Paired Sample T-Test was used to examine the differences in student activeness and learning outcomes before and after using interactive PowerPoint in the experimental class (X-7) and the control class (X-6), after the data were tested for normality.

Table 1. Results of the Paired Sample T-Test for the Experimental Class of SMAN 1 Ngluar

		Mean	N
Pair 1	Pretest Activeness	38,13	30
	Posttest Activeness	64,00	30
Pair 2	Pretest Learning Outcomes	38,00	30
	Posttest Learning Outcomes	51,67	30

Source: SPSS Output, processed by the researcher (2025)

The results show an increase in activeness (pretest mean 38.13 → posttest 64.00) and learning outcomes (pretest mean 38.00 → posttest 51.67) after the use of interactive PowerPoint, with the posttest values being higher than the pretest.

Table 2. Results of the Paired Sample T-Test for the Experimental Class of SMAN 1 Ngluar

		Mean	df	Sig. (2.tailed)
Pair 1	Pretest-Posttest Activeness	-12,586	29	<0,001
Pair 2	Pretest-Posttest Learning Outcomes	-13,667	29	<0,001

Source: SPSS Output, processed by the researcher (2025)

The test results show a significant increase in activeness (mean -12.586, $p = 0.001 < 0.05$) and learning outcomes (mean -13.667, $p = 0.001 < 0.05$) after using interactive PowerPoint, so H_0 is rejected. The control class data are presented below.

Table 3. Results of the Paired Sample T-Test for the Control Class of SMAN 1 Ngluar

		Mean	N
Pair 1	Pretest Activeness	39,47	30
	Posttest Activeness	59,50	30
Pair 2	Pretest Learning Outcomes	36,67	30
	Posttest Learning Outcomes	47,33	30

Source: SPSS Output, processed by the researcher (2025)

The results show an increase in activeness (pretest mean 39.47 → posttest 59.50) and learning outcomes (pretest mean 36.67 → posttest 47.33) after using PowerPoint, with posttest values higher than pretest.

Table 4. Results of the Paired Sample T-Test for the Control Class of SMAN 1 Ngluar

		Mean	df	Sig. (2.tailed)
Pair 1	Pretest-Posttest Activeness	-20,033	29	<0,001
Pair 2	Pretest-Posttest Learning Outcomes	-10,667	29	<0,003

Source: SPSS Output, processed by the researcher (2025)

The results show a significant increase in activeness (Δ mean = -12.586; sig. 0.001 < 0.05) and learning outcomes (Δ mean = -13.667; sig. 0.003 < 0.05) of students before and after using PowerPoint at SMA N 1 Ngluar. The experimental class data of SMA Muhammadiyah 1 Muntilan are presented in the following table.

Table 5. Results of the Paired Sample T-Test for the Experimental Class of SMA Muhammadiyah 1 Muntilan

		Mean	N
Pair 1	Pretest Activeness	39,63	30
	Posttest Activeness	66,27	30
Pair 2	Pretest Learning Outcomes	36,67	30
	Posttest Learning Outcomes	56,67	30

Source: SPSS Output, processed by the researcher (2025)

The results show an increase in activeness (pretest mean 39.63 → posttest 66.27) and learning outcomes (pretest mean 36.67 → posttest 56.67) after the use of interactive PowerPoint at SMA Muhammadiyah 1 Muntilan.

Table 6. Results of the Paired Sample T-Test
for the Experimental Class of SMA Muhammadiyah 1 Muntilan

		Mean	df	Sig. (2.tailed)
Pair 1	Pretest-Pposttest Activeness	-26,633	29	<0,001
Pair 2	Pretest-Posttest Learning Outcomes	-20,000	29	<0,001

Source: SPSS Output, processed by the researcher (2025)

The results show a significant increase in activeness (-26.633) and learning outcomes (-20.000) with sig. $0.001 < 0.05$, so H_0 is rejected. This indicates a significant difference before and after the use of interactive PowerPoint at SMA Muhammadiyah 1 Muntilan.

Table 7. Results of the Paired Sample T-Test
for the Control Class of SMA Muhammadiyah 1 Muntilan

		Mean	N
Pair 1	Pretest Activeness	41,70	30
	Posttest Activeness	59,17	30
Pair 2	Pretest Learning Outcomes	33,67	30
	Posttest Learning Outcomes	45,67	30

Source: SPSS Output, processed by the researcher (2025)

The results show an increase in activeness (mean 41.70 → 59.17) and learning outcomes (mean 33.67 → 45.67) after using PowerPoint, with posttest values higher than pretest.

Table 8. Results of the Paired Sample T-Test
for the Control Class of SMA Muhammadiyah 1 Muntilan

		Mean	df	Sig. (2.tailed)
Pair 1	Pretest-Pposttest Activeness	-17,467	29	<0,001
Pair 2	Pretest-Posttest Learning Outcomes	-12,000	29	<0,001

Source: SPSS Output, processed by the researcher (2025)

The test results show a significant increase in activeness (-17.467) and learning outcomes (-12.000) of students after using PowerPoint at SMA Muhammadiyah 1 Muntilan ($p < 0.05$).

4.1.7. Independent Sample T-Test

The Independent Sample T-Test was used to compare the experimental class (using interactive PowerPoint) with the control class (using regular PowerPoint) after the data were declared homogeneous.

Table 9. Group Statistics Results for SMAN 1 Ngluar

	Class	N	Mean
Activeness	Control Class	30	54,97
	Experimental Class	30	64,00
Learning Outcomes	Control Class	30	47,33
	Experimental Class	30	51,67

Source: SPSS Output, processed by the researcher (2025)

The participants of each class totaled 30. Activeness mean: control 54.97, experimental 64.00. Learning outcomes mean: control 47.33, experimental 51.67. Next, the Independent Sample T-Test was conducted.

Table 10. Independent Sample T-Test Results for SMA N 1 Ngluar

		Sig.(2-tailed)	Mean Difference
Activeness	<i>Equal variances assumed</i>	0,001	-9,033
	<i>Equal variances not assumed</i>	0,001	-9,033
Learning Outcomes	<i>Equal variances assumed</i>	0,000	-12,333
	<i>Wqual variances not assumed</i>	0,000	-12,333

Source: SPSS Output, processed by the researcher (2025)

Activeness: sig. 0.001 < 0.05, mean difference -9.033. Learning outcomes: sig. 0.000 < 0.05, mean difference -12.333. H_0 is rejected, meaning there is a significant difference between the control and experimental classes at SMA N 1 Ngluar. The data for SMA Muhammadiyah 1 Muntlan are presented below.

Table 11. Group Statistics Results for SMA Muhammadiyah 1 Muntlan

	Class	N	Mean
Activeness	Control Class	30	41,70
	Experimental Class	30	59,17
Learning Outcomes	Control Class	30	45,67
	Experimental Class	30	56,67

Source: SPSS Output, processed by the researcher (2025)

Activeness: mean control 41.70, experimental 59.17. Learning outcomes: mean control 45.67, experimental 56.67. The Independent Sample T-Test data for SMA Muhammadiyah 1 Muntlan are presented below.

Table 12. Independent Sample T-Test Results for SMA Muhammadiyah 1 Muntlan

		Sig.(2-tailed)	Mean Difference
Activeness	Equal variances assumed	0,000	-17,467
	Equal variances not assumed	0,000	-17,467
Learning Outcomes	Equal variances assumed	0,000	-11,000
	Wqual variances not assumed	0,000	-11,000

Source: SPSS Output, processed by the researcher (2025)

Activeness (sig. 0.000, Δ mean -17.467) and learning outcomes (sig. 0.000, Δ mean -11.000) show that H_0 is rejected; there is a significant difference between the control and experimental classes at SMA Muhammadiyah 1 Muntlan.

4.1.8. N-Gain Score

The results of the Paired Sample T-Test show a significant increase in student activeness and responsibility before and after using interactive PowerPoint at SMA N 1 Ngluar and SMA Muhammadiyah 1 Muntlan, with the N-Gain score indicating effectiveness in activeness and learning outcomes

Table 13. Gain Score Effectiveness Test Results

	Description	SMA N 1 Ngluar	SMA Muhammadiyah 1 Muntlan
Activeness	Mean	0,42	0,44
	Minimum	0,23	0,15
	Maximum	0,58	0,59
Learning Outcomes	Mean	0,58	0,55
	Minimum	0,43	0,33
	Maximum	0,67	0,67

Source: Excel Output, processed by the researcher (2025)

The N-Gain results show that the activeness and learning outcomes of students at SMA N 1 Ngluar (0.42; 0.58) and SMA Muhammadiyah 1 Muntlan (0.44; 0.55) > 0.3, so the use of interactive PowerPoint is effective.

4.1.9. Final Product Review

This research developed an interactive PowerPoint based on ADDIE to improve student activeness and learning outcomes on economic activity material. The media contains material, images, videos, group assignments, and interactive quizzes, and has been validated by experts and tested on students with a very feasible score.

The statistical test results (Paired and Independent Sample T-Test) show a significant increase in activeness and learning outcomes compared to before usage and the control class. The N-Gain shows the media is effective, with SMA N 1 Ngluar (0.415; 0.582) and SMA

Muhammadiyah 1 Muntilan (0.436; 0.551). The interactive PowerPoint is effective because it presents the material attractively, clearly, and encourages active student participation.

5. Conclusion

The interactive PowerPoint developed functions as audio-visual learning media designed to improve student activeness and learning outcomes with medium capacity, and has been validated with very feasible scores by material experts (4.6), media experts (4.8), practitioner teachers (4.6 and 4.3), and 40 students (4.5). Its effectiveness is indicated by an increase in activeness and learning outcomes at SMA N 1 Ngluar (N-Gain 0.415 and 0.582) and SMA Muhammadiyah 1 Muntilan (N-Gain 0.436 and 0.551), along with significant differences when compared to control classes, showing that the interactive PowerPoint can be used for economic activity material in both offline and online learning without requiring internet access. Future researchers are advised to develop the media more efficiently, test its influence on larger samples, socialize its use for wider adoption, and collaborate it with learning methods suited to student characteristics to produce newer findings.

The interactive PowerPoint developed serves as audio-visual learning media aimed at increasing students' activeness and learning outcomes with medium capacity, and it has been validated with very feasible scores by material experts, media experts, practitioner teachers, and students. Its effectiveness is shown through significant increases in activeness and learning outcomes in both SMA N 1 Ngluar and SMA Muhammadiyah 1 Muntilan compared to control classes, indicated by positive N-Gain values. This media can be utilized for teaching economic activity materials, applied in both offline and online learning, and accessed without an internet connection. For future development, researchers are advised to create more efficient versions of the media, examine its impact on a wider sample, socialize it for broader adoption, and collaborate it with learning methods that align with student characteristics to generate more updated findings.

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