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# Development of interactive multimedia learning based on articulate storyline for AutoCAD learning in basic vocational subjects at vocational high school

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**Abstract:** This study aims to develop interactive multimedia learning based on Articulate Storyline for basic AutoCAD learning to overcome the limitations of the learning media used previously in basic vocational subject of Desain Pemodelan dan Informasi Bangunan (DPIB) program at SMK Negeri 1 Purwakarta. The research method used is Research and Development (R&D) with the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model with systematic stages starting with analyzing problems, designing products, developing products , product testing and evaluation The research subjects involved two material experts, two media experts, and all class X DPIB students with a total of 98 people. The data collection instruments were expert validation questionnaires and student validation questionnaires with a likert scale. The validation results showed that the media obtained a feasibility percentage of 97% from material experts, 94% from media experts, and 81% from students, therefore the overall result was in the "very feasible" category. The main finding in this study is that an multimedia is deemed feasible for use in basic AutoCAD learning by taking into account the input from experts and students regarding program smoothness. The conclusion of this study confirms that the development of interactive multimedia learning based on Articulate Storyline with the ADDIE model is effective for use in AutoCAD practical learning in vocational high school and has the potential to improve the quality and motivation of student learning. This study is expected to motivate vocational school teachers to continue innovating in the development of learning media.

**Keywords:** interactive learning multimedia, AutoCAD, articulate storyline, ADDIE, vocational high school

## 1. Introduction

The Ministry of Education, Culture, Research, and Technology has begun implementing a new curriculum called *Kurikulum Merdeka*. This curriculum allows teachers to adapt it independently and encourages students to learn actively, effectively, creatively, and innovatively using technology (Asmayawati et al., 2024). One effort to achieve this goal is using digital learning media to support the learning process. Digital learning media are considered effective because they improve learning quality and are key to successfully implementing the *Kurikulum Merdeka* (Farid et al., 2024). SMK Negeri 1 Purwakarta is one of the vocational high schools that is currently implementing an Kurikulum Merdeka in all its expertise programs, including the Desain Pemodelan dan Informasi Bangunan (DPIB) program. This program is dominated by practical learning with complex stages, particularly digital drawing using a variety of software, such as AutoCAD. Basic AutoCAD is taught in the basic vocational subject, which is required for all 10th grade DPIB students.

Basic AutoCAD learning activities in the basic vocational subject for 10th grade DPIB students at SMK Negeri 1 Purwakarta currently use supporting learning media in the form of video tutorials sourced from YouTube to support independent learning activities as part of the implementation of the *Kurikulum Merdeka*. Observations show that there are serious problems with the learning activities, including that the learning media used cannot explain the learning material properly and are not in line with the students' comprehension, therefore that currently students are less interested in participating in learning using these media. The video tutorials are distributed to students to be watched independently, with the expectation that students will find it easier to follow the drawing steps.

However, based on interviews with students, they explained clearly that the media used is not effective for learning because the material in the videos was presented too quickly, making it difficult for them to follow the drawing steps, especially when learning how to draw a simple one-story house plan using AutoCAD software. They also stated that the media used was not very interesting in terms of display, and the material presented was difficult to understand and not systematic, therefore there was no significant difference when the tutorial video was used as a supporting media. A good learning media should be able to simplify complex material and adapt to the thinking abilities of users (students) therefore that the media can be a tool to help students understand the material (Zulhelmi et al., 2023). The lack of student interest negatively affected the midterm assessment results. In the odd semester midterm assessment of the 2024/2025 academic year, only 14 out of 36 students in class X DPIB 1, 8 out of 36 students in class X DPIB 2, and 6 out of 36 students in class X DPIB 3 achieved the minimum score. Overall, only 28 out of 108 students (25.9%) met the minimum criterion. These results suggest that many students are still struggling to understand and retain AutoCAD drawing procedures.

The results of interviews with basis vocational subject teachers revealed that the media used was not yet optimal because some of the material was not in line with learning needs, the delivery of material in the videos was too fast, and it was not interesting or interactive. Currently, basic AutoCAD learning requires new learning media that can help students understand the material well and attract their attention to follow the learning process. However, the development of learning media in schools, especially in vocational high schools, currently faces its own challenges, particularly due to the lack of training and development of teachers' competencies to develop digital learning media, especially for vocational high school teachers (Rahmawati et al., 2025). Based on the problems described above, there is a need for the development of new learning media that can overcome the limitations of the learning media used previously. The researcher decided to develop interactive multimedia learning based on Articulate Storyline according to the problems described above.

Interactive multimedia learning combines three key concepts: multimedia, learning, and interactivity. It is a learning program that combines text, images, graphics, sound, video, animation, and simulation in harmony with the support of a computer or similar device. The primary purpose of interactive multimedia learning is to serve as a tool for achieving learning objectives while enabling users to actively engage with the program. Therefore, interactive multimedia learning must clearly convey learning objectives, present material through various combinations of multimedia, and evaluate learning achievement through questions or quizzes. In terms of interactivity, interactive multimedia learning programs should be equipped with features that enable users to actively engage with them (Domagk et al., 2010). Previous research by Abdulrahaman et al. (2020) explains that interactive multimedia learning can improve the effectiveness of practical learning in vocational schools, particularly when it comes to mastering complex concepts. Currently, various types of software can assist in creating interactive learning

media; one example is Articulate Storyline. Articulate Storyline is software used to create interactive learning multimedia with various interesting features. It has been widely adopted by educators because it is easy to learn, even for those with no programming background (Ayanwale et al., 2022).

Previous studies have shown that interactive learning multimedia developed using Articulate Storyline is feasible for use in vocational high school learning based on expert and student assessments (Daryanes et al., 2023). However, there has been no research focused on developing interactive multimedia learning based on Articulate Storyline for AutoCAD learning in vocational high schools. Therefore, this research is important to produce new innovations in the development of learning media, especially in AutoCAD training in vocational high schools. The researchers chose Articulate Storyline as the main software used to create multimedia based on the following considerations: (1) because this software is still relatively new and has not been widely used in learning (Jais & Amri, 2021), (2) The DPIB program currently has a computer lab with a stable internet connection. This is a potential that can be utilized to use interactive multimedia learning in basic AutoCAD learning. (3) Articulate Storyline has never been used for AutoCAD learning, especially in vocational high schools. (4) Based on previous research conducted by (Pratama et al., 2021; Prayoga & Sunaryo, 2024; Sahara & Adistana, 2023), Articulate Storyline is considered capable of producing interactive multimedia learning that suits the students' needs.

Furthermore, interactive multimedia learning will be developed by researchers using the ADDIE model. The ADDIE model was chosen because it is a systematic, simple, and easy-to-understand development model, making it suitable for developing learning media products (Spatioti, 2022). Based on the above explanation, it can be determined that the purpose of this research is to develop a new learning media using the ADDIE model to overcome the limitations of the media used previously, therefore that this research is expected to produce interactive multimedia learning based on articulate storyline for basic AutoCAD learning that has been tested for feasibility based on expert and student assessments. Once the product is complete, it is hoped that the developed multimedia will be useful for teachers and students. For teachers, multimedia can be used to support learning activities and motivate teachers to continue innovating in the development of learning media, especially in the context of vocational high schools. For students, it is hoped that multimedia will be useful in facilitating students' understanding of learning materials and motivating students to participate in learning activities.

## 2. Methods

The research method used in this study is research and development (R&D). These methods are applied to create and evaluate the effectiveness of products (Sugiyono, 2013). To produce a product, research is needed to analyze needs and test the product's effectiveness therefore that it can function properly in society. There are many development models in R&D. In this study, (Branch, 2009) ADDIE model is used, which has five stages: analyze, design, develop, implement, and evaluate. The ADDIE model development flow can be seen in Figure 1.

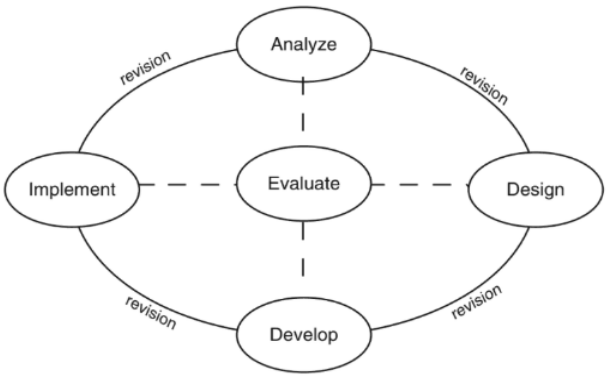



**Figure 1**. ADDIE model development flow

### 2.1 Analyze

The analysis stage was based on data obtained through direct observation of learning activities and unstructured interviews with teachers and students. In the initial stage, analyses of learning problems and student needs were conducted to determine the necessity of developing new learning media. The second stage of analysis was then conducted as a follow-up to the initial analysis. This stage included an analysis of learning objectives and materials in accordance with the Kurikulum Merdeka, resource analysis, and software analysis.

### 2.2 Design

The Design stage is carried out by determining the order of learning materials, compiling flowcharts, compiling storyboards, and determining product specifications.

### 2.3 Development

The development stage is carried out by making interactive learning multimedia products based on the design made at the design stage. After the multimedia is completed, the next step is to validate it to experts to assess the feasibility of the developed multimedia. Validation was carried out to two media experts and two material experts using a validation sheet.

### 2.4 Implementation

At this stage, a media trial was carried out for students to obtain an assessment of class X students of SMK Negeri 1 Purwakarta on multimedia developed through questionnaires. The trial was carried out twice, namely a small group trial for 30 students and a large group trial for 98 students.

### 2.5 Evaluation

The evaluation stage is carried out by processing the results of student assessments on interactive learning multimedia. At this stage, revisions are also made based on suggestions given by students if needed. The complete research flow can be seen in the Figure 2.

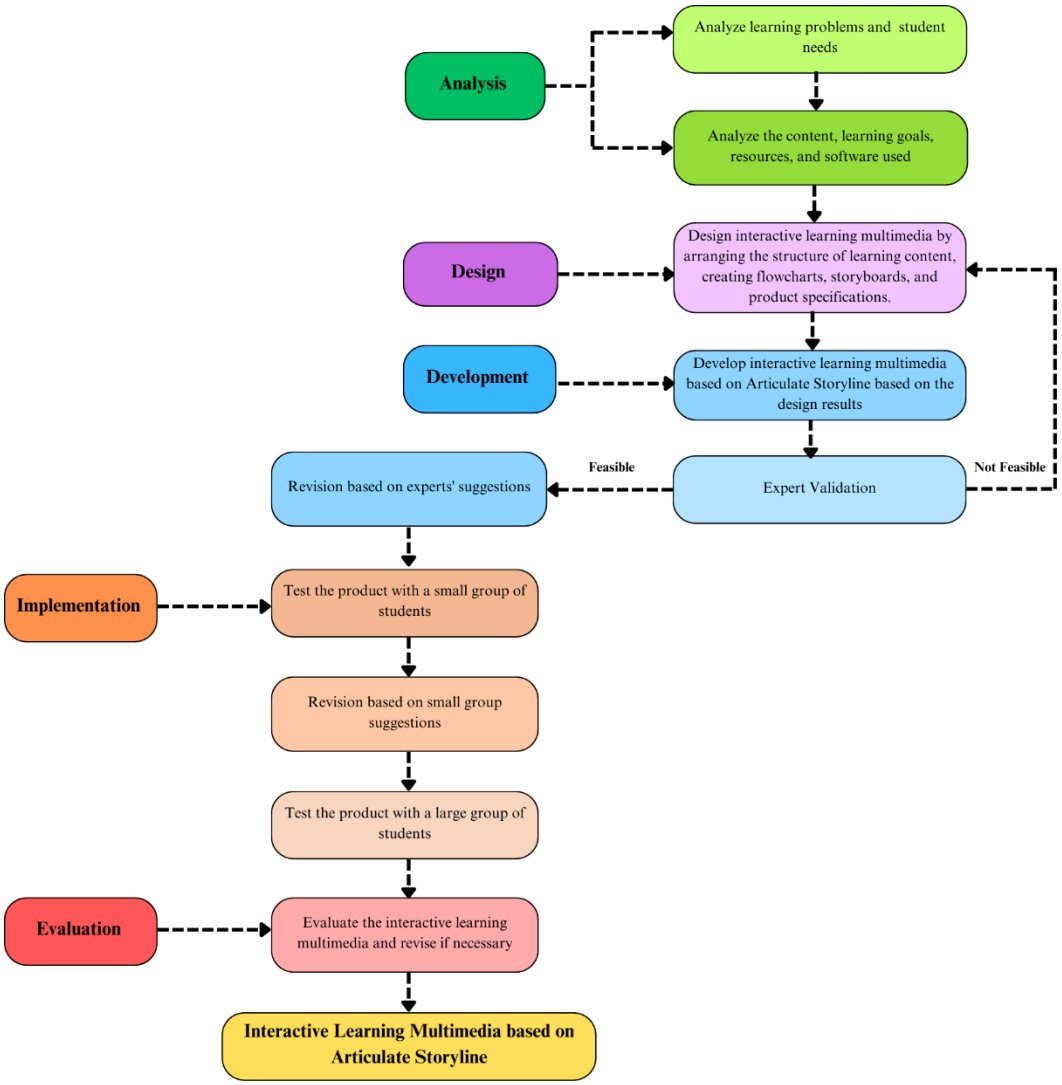



**Figure 2.** Development research flow

The data collection technique was carried out by means of observation, interviews, and using questionnaires consisting of media validation sheets, material validation sheets and student validation sheets. The assessment indicators are shown in detail in the Table 1.

**Table 1.** Interactive learning multimedia assessment indicators based on articulate storyline

| For material experts | For media experts | For students |
|---|---|---|
| Eligibility of Material or Content | Display | Technical Quality |
| Language | Programming | Learning Quality |
| Relevance to learners | | Presentation Eligibility |

The data obtained from the results of the research questionnaire will be analysed to determine the feasibility of the interactive learning media developed. The data from the research were processed using descriptive analysis techniques. The assessment for each indicator on the questionnaire of the validation sheet of material and media experts used a Likert scale with a score of 1-5. Details of the Likert scale used for expert assessment are presented on the Table 2.

**Table 2.** Likert scale 1-5

| No. | Score | Criteria |
|---|---|---|
| 1 | 5 | Excellent |
| 2 | 4 | Good |
| 3 | 3 | Fairly Good |
| 4 | 2 | Not Very Good |
| 5 | 1 | Not Good |

The assessment for each indicator on the student assessment questionnaire uses a Likert scale with scores ranging from 1 to 4. Details of the Likert scale used for the student assessment questionnaire are shown in Table 3.

**Table 3.** Likert scale 1-4

| No. | Score | Criteria |
|---|---|---|
| 1 | 4 | Strongly agree |
| 2 | 3 | Agree |
| 3 | 2 | Disagree |
| 4 | 1 | Strongly disagree |

Then, the scores obtained are added up and divided according to the number of statements in each indicator using Eq. 1.

$$\vec{X} = \frac{\sum X\, i}{N} x100\% \quad (1)$$

The percentage scores obtained from the assessment instruments of subject matter experts, media experts, and students were then classified based on the criteria for the suitability of learning media. The criteria based on percentages are presented in Table 4.

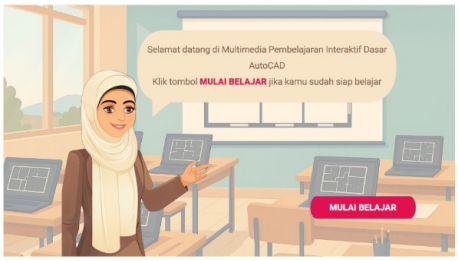
**Table 4.** Interactive learning multimedia eligibility criteria

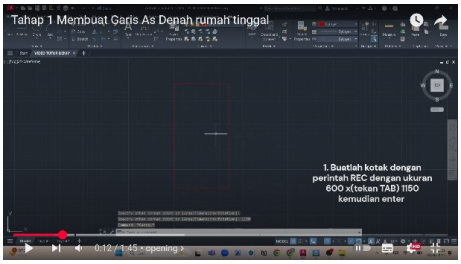
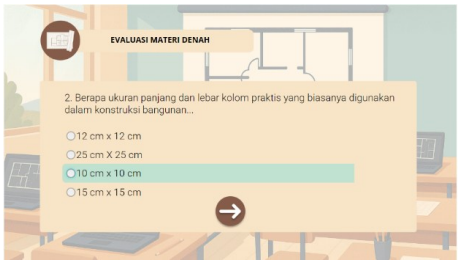
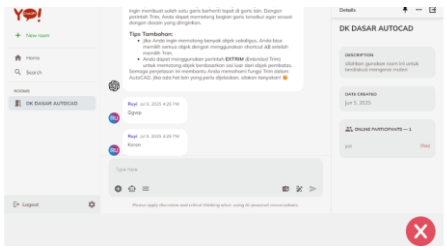
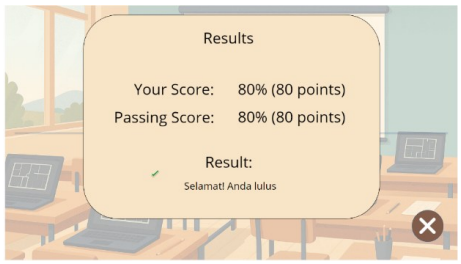
| No. | Interval | Criteria |
|---|---|---|
| 1. | 81-100% | Very feasible |
| 2. | 61-80% | Feasible |
| 3. | 41-60% | Fair |
| 4. | 21-40% | Not accepted |
| 5. | 0-20% | Very unacceptable |

## 3. Results

The analysis conducted revealed that students were dissatisfied with the learning media used previously, thus necessitating the development of new learning media. The availability of resources at SMK Negeri 1 Purwakarta also supported the development of new learning media. The creation of Interactive Multimedia Learning was carried out using Articulate Storyline software as the main software for multimedia creation. To create content for the multimedia, several supporting software were also used, namely AutoCAD for creating working drawings, YouTube for uploading videos, and Microsoft Climphamp for created tutorial videos. The media creation process was carried out in accordance with the design created in the design phase. The multimedia product results can be seen in the Table 5.

**Table 5.** Interactive learning multimedia display

| Display | Information |
|---|---|
|  | **Opening**<br>Displaying the UPI symbol and the SMK Negeri 1 Purwakarta symbol |
|  | **Welcome**<br>Contains a welcome to the students |
|  | **Menu**<br>Contains a selection of activities that students can choose from. |
|  | **Media information**<br>Contains about the meaning of Interactive Learning Multimedia |
|  | **Floor material**<br>Explanation of the material on the meaning of the plan and the function of the plan |
|  | **Floor plan material**<br>Explanation of the components in the drawing of the plan |

| Display | Information |
|---|---|
|  | **Floor plan material**<br>Explanation of the components in the floor plan image |
|  | **Video tutorial**<br>Contains interactive video tutorials. Users can choose the drawing stage section according to their needs |
|  | **Evaluation**<br>There are evaluation questions that need to be solved by students |
|  | **Discussion forum**<br>Discussion forums are provided for teachers and students to discuss the material. |
|  | **Evaluation**<br>Evaluation results view |

Two material experts then validated the created multimedia. The experts assessed the multimedia's suitability based on its content. The results of their assessment can be seen in Table 6.

**Table 6.** Results of material expert assessment

| No | Subject | Percentage | Criteria |
|---|---|---|---|
| 1 | Material Experts 1 | 99% | Very feasible |
| 2 | Material Experts 2 | 95% | Very feasible |
| | Average | 97% | Very feasible |

Based on the assessment of the two material experts, the total score for the suitability of the multimedia material was 97%, categorized as "Very Feasible". Material experts provided several suggestions for the developed multimedia, including (1) adding text to the video tutorials and (2) increasing the number of evaluation questions. The developed multimedia was then validated by two media experts to assess the suitability of the multimedia from the aspects of appearance and programming. The results of the multimedia suitability assessment by the media experts can be seen in Table 7.

**Tabel 7.** Results of media experts assesment

| No | Subject | Percentage | Criteria |
|---|---|---|---|
| 1 | Media Experts 1 | 90% | Very Feasible |
| 2 | Media Experts 2 | 98% | Very Feasible |
| | Average | 94% | Very Feasible |

Based on the assessment of both media experts, the total score for multimedia feasibility was 97%, categorized as "Very Feasible." There were several suggestions given by media experts regarding the multimedia developed, including (1) paying attention to the consistency of button placement, (2) removing unnecessary navigation buttons so as not to confuse students, and (3) lowering the volume of the background music in the interactive tutorial video.

The overall assessment results indicate that the developed learning multimedia falls into the "Very Feasible" category and can therefore be tested on students. The Interactive Learning Multimedia that has been improved based on expert advice was then distributed to students to determine their response to the developed multimedia. The testing was conducted twice: a small-group test and a large-group test. The small-group test was conducted with 30 students to assess their initial response to the developed multimedia. The students' evaluation results from the small-group test can be viewed in Table 8.

**Table 8.** Small group student assessment results

| Aspects | Total score | Max score | Percentage | Information |
|---|---|---|---|---|
| Technical quality | 448 | 600 | 75% | Feasible |
| Learning quality | 553 | 720 | 77% | Feasible |
| Presentation Eligibility | 355 | 480 | 74% | Feasible |
| Total | 1356 | 1800 | 70% | Feasible |

The small group trial assessment obtained a total score of 70%, categorizing the multimedia as "Feasible". Students also provided comments and suggestions to improve the multimedia. Their comments and suggestions included the following: (1) the text was still considered too small, (2) the multimedia was slow to operate, and (3) the buttons needed to be enlarged. These comments were taken into consideration when improving the product before conducting a trial with a larger group. After making these improvements, the multimedia was tested with a larger group of 98 people. The students' assessment results from the large group trial are shown in the Table 9.

**Table 9.** Assessment results of large group students

| Aspects | Total score | Max score | Percentage | Information |
|---|---|---|---|---|
| Technical Quality | 1595 | 1960 | 81% | Very feasible |
| Learning Quality | 1938 | 2352 | 82% | Very feasible |
| Presentation Eligibility | 1230 | 1568 | 78% | feasible |
| Total | 4763 | 5880 | 81% | Very feasible |

The results of the large-scale trial showed an overall score of 81%, placing the developed multimedia in the "Very Feasible" category. Participants also provided comments and suggestions regarding the multimedia developed for the trial. They said that the media is easy to understand and fun and engaging, like a game. They suggested maintaining consistency in creating such media and noted that links are easy to open. However, they also said that on some devices, the media is slow, possibly depending on the device and network. Finally, they said that the media can assist in self-directed learning.

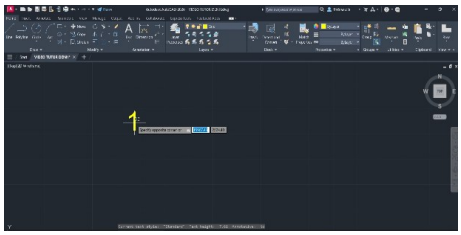
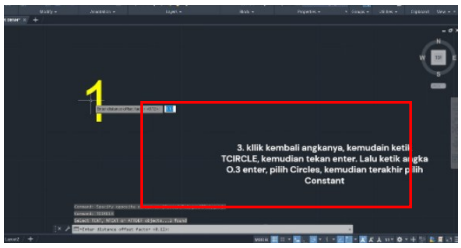
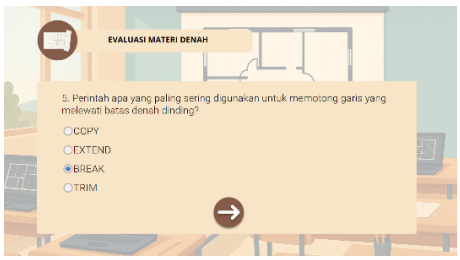
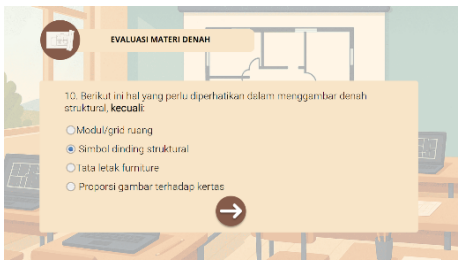
## 4. Discussion

The interactive learning multimedia based on Articulate Storyline that was developed received positive responses from experts and students, as seen from the assessment results, so that it is included in the category of very feasible for use in learning activity. The assessment from material experts received a feasibility percentage of 97% and was included in the very feasible category. Material experts assessed that the content contained in the learning multimedia was in accordance with the learning goals of AutoCAD class X DPIB. This can be proven through the assessment results of the two material experts who gave a maximum score of 5/5 on the indicator of material suitability with learning goals. Then, the indicator of material presented in a gradual and systematic manner also received a maximum score of 5/5 from both material experts. This shows that the material in the multimedia can be considered valid based on expert assessment. The factor that influenced the assessment results was that before creating the material content, the researcher conducted an in- depth analysis of the learning goals, material, and student needs in basic AutoCAD learning so that the content was in line with learning needs. The indicators analyzed by the researcher were selected based on the ADDIE theory developed by (Branch, 2009).

However, material experts still recommend that the multimedia that has been developed can be improved, including (1) adding text to video tutorials so that students' perceptions of the material presented are the same. This is in line with the opinion (Syawaluddin, 2022) that one of the functions of learning media is to be able to equalize students' perceptions of the material presented (2) increase the number of evaluation questions, as there are only 5 evaluation questions in the multimedia, which is considered insufficient to measure students' overall understanding. This statement is in line with the opinion of (Dwi Surjono, 2017) that evaulations in multimedia should be comprehensive. The suggestions provided by material experts have been analyzed by researchers and are in accordance with the theory of interactive learning multimedia, therefore the suggestions provided were implemented by researchers in the developed multimedia. The results of the revision can be seen in the Table 10.

Furthermore, the assessment from media experts received a feasibility percentage of 94% and was included in the very feasible category. Media experts assessed that the developed multimedia was very good, especially in terms of display quality and learning media design indicators, which received a maximum score of 5/5 from both media experts. The factor that led to the high assessment results from the experts was that the researchers maximized the design stage by following the stages described in the Branch (2009) theory completely, starting from determining the size of the media, colors, fonts used, and content to be included in the media so that the specifications of the multimedia product developed were in accordance with the learning needs of teachers and students based on the results of the analysis conducted previously.

**Table 10.** Revised results based on material expert suggestions

| Before revision | After revision |
|---|---|
|  There is no text in the interactive tutorial video and the video back sound volume is still too loud. |  Add text to interactive tutorial videos and lower the volume of video background. |
|   There are only 5 evaluation questions on multimedia. |   The number of evaluation questions on multimedia has been increased to 10 questions. |

However, media experts provided suggestions regarding multimedia programming, which was considered lacking, especially in terms of navigation, consistency in button placement, and video background sound. Media experts suggest (1) paying attention to button consistency in terms of size and placement so as not to interfere with visual comfort. This is in line with the opinion of (Dwi Surjono, 2017), who explains that button placement on interactive learning multimedia needs to be consistent. (2) The clarity of navigation indicators needs to be improved by removing the "home" button used to return to the menu. The media expert considered this confusing, as returning to the menu could be done simply by using the X button. This is also in line with the opinion of (Dwi Surjono, 2017) the navigation on multimedia must be clear so as not to confuse users. (3) Lowering the volume of the background sound in the video because it was considered too loud, which would interfere with the process of conveying information. This is in line with the opinion (Muhammad et al., 2017) that the use of background sound that is too loud can interfere with the process of conveying information. The results of the revision can be seen in the Table 11.

**Table 11.** Revised results based on media expert suggestions

| Before revision | After revision |
|---|---|
|   There is a *home button* to return to the menu, this is considered confusing for users. |   Removing *the home* button, so that it returns to the menu using the X button |

Students of X DPIB SMK Negeri 1 Purwakarta gave an assessment with a total score of 81% in the very feasible category. Factors contributing to the high assessment results included improving the multimedia to be tested based on suggestions provided by students in small group trials. Students in class X also provided suggestions, including (1) text readability, as the font size was still considered too small, (2) multimedia was slow to operate, and (3) the button size needed to be enlarged. The suggestions provided by the students also served as the basis for the researchers to make revisions to improve the product. The results of the revisions based on the suggestions provided by the students can be seen in the Table 12.

**Table 12.** Revised results based on students' suggestions

| Before revision | After revision |
|---|---|
|   The size of the text and buttons is rated by students as too small |   Text and button sizes are enlarged |

The multimedia developed received positive responses from students, as seen from their enthusiasm when trying to use this multimedia in learning activity. Students said that "the multimedia developed is like an exciting game, so it doesn't feel like learning." Then the material is presented with various elements such as text, images, audio, and video, which makes the understanding of the material more comprehensive. The results of the research show that the multimedia developed is very good and falls into the category of very feasible based on the assessments of experts and students. In the product development process, experts and students provided suggestions and input so that the multimedia developed could be even better. The suggestions provided were analyzed by researchers to determine whether they would be implemented or not based on the interactive learning multimedia theory developed by (Dwi Surjono, 2017; Muhammad et al., 2017; Syawaluddin, 2022) The results of the analysis show that the suggestions obtained are in accordance with the criteria for interactive learning multimedia, so that all suggestions from experts and students were implemented in their entirety in the multimedia developed.

The results of this study are similar to previous studies conducted by (Assyifa et al., 2021; Rahmayanti & Ratnaningsih, 2024; Sahara & Adistana, 2023) regarding the advantages of learning multimedia developed with Articulate Storyline, namely (1) it is easy for students to operate, (2) it can contain various learning contents such as text, images, videos, and animations in one media, (3) it can be accessed anywhere and anytime, thus supporting students to learn independently. (4) it is able to attract students' interest in participating in learning; (5) there are many interactive features that make learning interesting. However, there are still some weaknesses in the multimedia developed with Articulate Storyline, namely (1) for slides that contain a lot of content, the multimedia sometimes experiences loading issues that can potentially disturb its fluency; (3) to access the product, an adequate data connection or network is required, because this media operates online. The weaknesses of the developed multimedia align with the research findings by (Widyanika, 2021) and (Lailimuniffah & Saidah, 2023).

The research conducted also differs from previous research conducted by (Assyifa et al., 2021; Widyanika, 2021; Lailimuniffah & Saidah, 2023; Rahmayanti & Ratnaningsih, 2024; Sahara & Adistana, 2023) In this study, testing was conducted twice, namely on small groups of students and large groups of students. This is an advantage of the research because by conducting two tests, technical errors can be anticipated earlier and the feedback provided by students will be more in-depth and varied so that media development can be carried out optimally. This can be seen in the results of student assessments, which increased from 70% in the acceptable category to 81% in the very feasible category after revisions were made to the multimedia based on suggestions provided by students. The increase in the assessment percentage shows that the developed multimedia has improved in terms of technical quality by 6%, learning quality by 5%, and presentation suitability by 4%. This study involved 98 students from 3 different classes, which is far more than the sample of students used in previous studies, which is expected to increase the validity of the assessment results and enrich student feedback.

Interactive learning multimedia developed with Articulate Storyline has limitations, especially in terms of smoothness of use, which often results in loading when moving into the next slide. This is influenced by the amount of content in the multimedia and the smoothness of the internet network used by users. This study found several solutions that can improve the smoothness of multimedia performance based on test results, namely (1) visual elements should be compressed before being inserted into multimedia. This can make the multimedia file smaller, thereby improving performance and smoothness. (2) When inserting videos into multimedia, it is better to embed links rather than directly uploading videos into Articulate Storyline so that the Articulate Storyline project file size is smaller. (3) Change the published project results from HTML to links to make it easier for users to access multimedia with various devices.

By implementing these steps and adopting the suggestions provided by experts and students, the multimedia developed currently has better performance. This is shown by a 6% increase in assessment results in terms of technical quality, so further research is expected to consider the suggestions provided. Based on the results of the study, the multimedia developed using Articulate Storyline is very feasible and can be used as an alternative learning media for basic AutoCAD practical learning for vocational high school students. Therefore, it is hoped that the development of interactive learning multimedia based on Articulate Storyline can continue in other vocational high schools or vocational training with different learning material and populations.

## 5. Conclusion

This study concluded that the development resulted in an Interactive Multimedia Learning product developed using the ADDIE model, starting from the analysed stage by processing data from interviews with teachers and students, which revealed that learning media appropriate to learning needs and student needs were required. The design stage involved producing an Interactive Multimedia Learning design in the form of a storyboard and flowchart. the development stage, which produced an Interactive Multimedia Learning product for basic AutoCAD material categorized as “Very Feasible,” making it usable in learning based on expert assessment. Student evaluations were obtained during the implementation phase, yielding very positive results as seen from the students' evaluations of the multimedia, which received the “Very Feasible” category based on trial with X grade DPIB students in the 2024/2025 academic year at SMK Negeri 1 Purwakarta. The conclusion drawn from the evaluation stage indicates that the developed Interactive Multimedia Learning falls under the “Very Feasible” category for use in teaching basic AutoCAD material with a practical focus in the basic vvocational subject for grade X DPIB at SMK Negeri 1 Purwakarta.

Recommendations for future research include (1) exploring the software to be used beforehand so that multimedia creation can be done more quickly; (2) conducting further research on the effectiveness and implementation of the developed media; (3) adding additional features to record learning outcomes, such as an automatic evaluation system or quiz result reports; and (4) avoiding adding too much content to the multimedia, which could slow down its operation (5) compress images, videos, and other visual elements before using them in Articulate Storyline projects.

## Author's declaration

### Author contribution

**Tjahyani Busono**: validating media, providing suggestions in media development, writing supervision. **Riskha Mardiana**: validating media, providing suggestions in media development, writing supervision. **Fitrina Aulia Pertiwi**: writing articles, creating media, testing media.

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### Conflict of interest

The authors declare that there is no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

### Ethical clearance

This research obtained permission from experts and the research location, SMK Negeri 1 Purwakarta. The author ensures that the research adhered to ethical standards and protected the data of the respondents.

### AI statement

This article is the original work of the author without using AI tools for writing sentences and/or creating/editing tables and figures in this manuscript.

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Universitas Negeri Padang as the publisher, and the Editor of Jurnal Pendidikan Teknologi Kejuruan state that there is no conflict of interest towards this article publication.

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## Nomenclature

$\vec{X}$ : Average score (Mean)
$\sum X i$ : Sum of x values from i to n
N : Number of data points