

Zoom slide presentation on basic electrical & electronics subjects Class X Electrical Engineering Department SMK Darussalam Makassar

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ABSTRACT

The research aims to: (1) Identify the need for interactive multimedia presentations using Microsoft Office PowerPoint version 2019 (2) Design interactive multimedia presentations using Microsoft Office PowerPoint version 2019 (3) Produce interactive multimedia presentation media using Microsoft Office PowerPoint version 2019 which are valid and practical. The method used is research and development with the Alessi and Trollip models. The results of the needs analysis show inferior qualifications. The validation results of media and design experts show excellent qualifications and are at a very valid category level. At the same time, the design aspect is in good qualification and is at the valid category level. The results of the content expert validation show excellent qualifications and are at the very valid category level. Product development was then handed over to 3 students who were selected based on learning achievement by the subject teacher. The results of the individual test questionnaire show that the percentage of student 1 is in very satisfactory qualifications, the percentage of student 2 is in satisfactory qualifications, the percentage of student 3 is in very satisfactory qualifications and is at the practical category level so that the 2019 interactive multimedia PowerPoint presentation media does not need to be revised. The product development was then handed over to 9 selected students to be divided into 3 groups consisting of 3 students. The 2019 interactive multimedia PowerPoint presentation media is in good qualifications and at the practical category level. Assessment results. The teacher of the basics of electricity shows a percentage of 100% achievement level, has very good qualifications, and is at the level of a very practical category to use.



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INTRODUCTION

Educational Technology is an integral part of the education sector. Various kinds of reforms have been carried out to improve the quality of education. To improve the quality of education, various breakthroughs are needed both in the quality of teachers/instructors, curriculum development, and learning innovations as well as the completeness of facilities and infrastructure. To improve the learning process, teachers are required to make learning more innovative and creative which encourages students to learn optimally both in independent learning and in



classroom learning, and are required to master the devices that become modern technologies that support the needs of using appropriate media with the demands of scientific development so that they go hand in hand in achieving educational goals. Various kinds of reforms are carried out by educational technologists to improve the quality of education. According to [Miarso \(2011\)](#) argues that: Human resources from the field of Educational Technology are one of the human resources who have competence especially for developing learning and can help to improve the quality of learning. Improving the quality of learning itself can be done through the process of design, development, utilization, management, and evaluation of all components in a learning system ([Ridwan et al., 2022](#)).

Media have a very big influence on the learning process carried out both in the classroom and outside the classroom. This shows that the media has a role in presenting objects directly so that they can foster students' learning interest and motivation, concretize objects that are considered abstract by students, minimize misconceptions because students get the same information (knowledge), streamline learning time, and provide presentations. Information consistently so that the learning objectives that have been set can be achieved ([Syaepudin & Juhji, 2020](#)).

Based on initial observations and needs analysis at Darussalam Vocational School, data were obtained including (1) Productive Electricity Subject Teachers need PowerPoint Presentation Media that are multimedia in nature because they still use the lecture method and are still the main media center in delivering practice-based discussion material or presenting real thing. Ideally, material that contains a series of practices or presents modeling requires media that supports students in understanding lessons so that learning objectives can be achieved. (2) Class X students of the Department of Electrical/Electrical Engineering need PowerPoint Presentation Media that is multimedia in nature as an alternative. (3) Teachers at SMK Darussalam Makassar have skills in using electronic devices. Thus the use of multimedia-based presentation media allows for further development in supporting the learning process. (4) Darussalam Vocational High School has adequate facilities and infrastructure such as digital light projectors, electronic devices, and other equipment that allow for the use of multimedia-based presentation media. This is also supported by the competence of teachers/educators in general in the use of electronic equipment which allows learning to take place using digital presentations. (5) In the Productive Electricity Subject, apart from including theory, there is also a demonstration process in the learning process. In addition, the needs related to the use of Multimedia are seen from the different characteristics and ways of learning of students so that they require multimedia components in this case text, sound, video, animation, graphics, and alternative links to make it easier for students to learn.

Referring to the needs analysis above and the results of initial observations made by researchers. So the development of interactive multimedia-based presentation media is very important to research class X students of SMK Darussalam Makassar can be a solution in improving quality and supporting learning success. Multimedia comes from 2 words multi and media. The meaning of multi and media in the quote is everything that is used by the teacher to convey messages (subject matter) to students with various types of media so that they can activate all the senses.

So linguistically the term multimedia is a combination of types of media which include text, images, sound, and video which are used to convey messages or information. Interactive multimedia is media that combine two or more elements consisting of text, graphics, images, photos, and audio, video, and animation in an integrated manner and creates two-way communication/interaction between users (humans/as users/product users) and computers (e software /applications/products in certain file formats) ([Fikri & Madona, 2018](#)). Multimedia can be described as an electronic device in which information is stored and transmitted in the form of digital media, therefore, is a carrier and mediator of various types of digitally encoded information, such as text, images, sound, video, animation or a combination of these elements this ([Degner et al., 2022](#)).

[Djamaluddin & Wardana \(2019\)](#) state that the learning process is essentially a process of communication, students with educators, and learning resources in a learning environment. Learning is also the assistance provided by educators so that the process of acquiring knowledge

and knowledge can occur, mastering skills and character, as well as forming attitudes and beliefs in students. Meanwhile, the term learning or teaching (a more widely known expression before), is an attempt to teach learners. Learning means trying to make someone learn. Learning is a system in which there is a series of communication interaction processes between learning resources, teachers, and students. The interaction is carried out face-to-face or indirectly through digital media, where the learning model has previously been determined. Learning is a system that consists of several components, and the components are interconnected with each other to achieve the goals that have been set (Hasan, 2021). Learning will be interactive by using multimedia. The interactive features of multimedia help students learn and remember better (Bustanil et al., 2019). Interactive means there is action in it (Kusumawati et al., 2021).

In the context of interactive multimedia-based learning, we can find significant differences because we have been able to provide various characteristics and principles so that learning can be said to use multimedia if there are certain characteristics in multimedia learning. The characteristics of multimedia can be identified in its use for educational purposes. Multimedia has advantages compared to other media. As stated by Warsita (2013) interactive multimedia programs have several advantages, including: (1) flexible, meaning that multimedia utilization can be carried out in class, individually, or in small groups. In addition, the flexibility of multimedia in the use of time is also a prominent feature so that it can be suitable for everyone (2) Serves individual learning speed (self-pacing), meaning that the speed of its utilization can be adjusted to the abilities and readiness of each student who uses it (3) It is content-rich, meaning that this program provides quite a lot of information content, even contains subject matter that is enrichment and deepening, and also provides further details of the content of the material or elaboration of the contents of the material specially prepared, or wants to learn more. (4) Interactive (interactive), which is two-way communication, meaning that this program provides opportunities for students to respond and carry out various activities which in the end can also be responded to by multimedia programs with feedback. This level of interactivity is one of the benchmarks in assessing the quality of interactive learning multimedia programs (Fikri & Madona, 2018).

Mercado (2022) suggests that multimedia or digital learning resources help students adapt to mental representations by using different media elements, which support information that can be processed. Information, which consists of content and sometimes learning activities, is presented using a combination of text, images, video, and audio with digital learning resources. One of the multimedia devices commonly used in learning is presentation media. Educators, in this case teachers, use digital media such as Microsoft Office PowerPoint. Digital media offer the opportunity to present information in various ways, for example, visual and auditory or by combining virtual and real environments. In addition, adaptive and interactive functions can refer to the learner's level of knowledge and provide a means for active learning (Degner et al., 2022). Digital-based computer presentations allow students to focus on important points from the information presented and create effective visuals in the form of illustrations, and diagrams. Presentation types affect memory at once: visual, auditory, emotional, and in some cases motor (Najmiddinova, 2021). Dale (1969) revealed that the effectiveness of understanding learning material is only 10%. It's different if a learning media is made with good design, involving graphics, audio, video, and interactivity will increase the effectiveness of material absorption up to 80 - 90% (Wibawanto, 2017). Powerpoint presentations are a great way to convey information, usually in online form to a large audience. Generally, PowerPoint presentations appeal to users because they are easy to create and edit and are generally small enough to fit on a CD or USB Jump drive (Patil & Jadhav, 2021).

PowerPoint is widely used by educators in schools or colleges in the teaching and learning process for several reasons. Powerpoint is a common application included with the Microsoft Office suite making it accessible to most computer users. It is widely used because of its ease of use with a concise interface, simple and easy-to-understand menus, and a multi-language system in addition to the usual Roman system (Osman et al., 2022).

Various versions have been released to meet the demands of users using presentation media so that the presentations displayed are better. Powerpoint version 2019 is a product released to make presentations more creative and interesting. By adding features to this application, you can

improve the quality of the presentations produced. Utilizing various new features from Microsoft PowerPoint will certainly produce interactive media in the form of multimedia-based PowerPoint slide shows that are different and more interesting and look like video media if previously they only contained a collection of material full of writing, slide designs, or transitions which are now normal with Utilizing the morph and zoom transition features will make the display different from the multimedia used before and of course also more interactive, creative and interesting (Istianah et al., 2020). Batubara (2021) explains that as a very popular program, Microsoft Office always develops its programs with the latest features. Additional features that get a lot of attention are the slide zoom and morph features. This feature makes the PowerPoint display even more attractive. The presentation was said to be successful in attracting and maintaining student interest. If it fits into the lesson structure and is not used mechanically, the results are positive. However, if learning follows the presentation that has been prepared, then the presentation becomes the main focus and is not aligned with the reality of learning (Ivanova, 2021). This research contributes as a reference in developing interactive multimedia based on PowerPoint 2019.

METHOD

The type of research used is Research and Development (R&D), namely research and development. This type of research refers to the process, research does not produce objects, while development produces objects that can be seen and touched. Development is a process or steps to develop an existing product that can be accounted for. According to Sugiyono (2015), the research and development method is a research method used to produce certain products and test the effectiveness of these products. This development model is based on the model developed by Alessi & Trollip. This model is the research carried out by the researcher (Alessi & Trollip, 2001). This development model is used for multimedia development with a simpler procedure than other development models (Rusadi et al., 2019). The suitability of the stages in this study includes the planning stage, the design stage, and the development stage. The advantage of this model is that its stages are more concise, consisting of several different parts explained in detail.

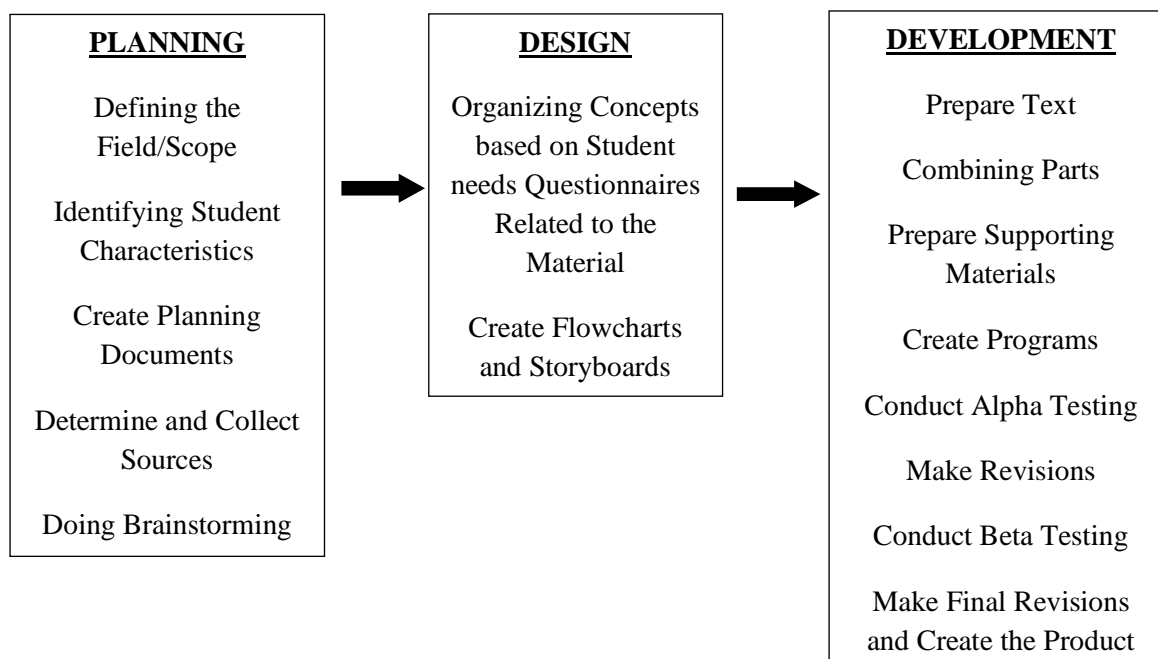


Figure 1. Multimedia Development Process by Alessi & Trollip

The procedural stages of the Multimedia Development Process by Alessi & Trollip are as follows; The planning stage consists of 4 parts, including defining the field/scope, namely taking from the syllabus and learning program design for productive electricity subject teachers, identifying student characteristics from pre-survey results, making planning documents, regarding

materials, things needed in making products, etc., collecting and determining sources for the Productive Electricity subject, for example: from books, PowerPoint presentations, the internet, etc., conducting brainstorming, namely holding discussions with the Productive Electricity Subject teacher. The design stage consists of 2 parts, namely structuring the concept based on a questionnaire regarding student needs related to the productive field of electricity. Create a storyboard (steps to operate Microsoft Office PowerPoint software based on Interactive Multimedia). The development stage consists of 4 parts, including; Creating instant programs, namely collecting data or material for Productive Electrical courses in the form of editing multimedia-based presentations, carrying out alpha tests, namely carrying out product validation by media experts and material experts (formative evaluation), making the first revision of product material that has been created, conducting beta tests, namely testing participants/students as users and subject teachers' responses to find out responses to the 2019 multimedia PowerPoint-based presentation media product (formative evaluation), and carry out the revised final assignment, namely creating a final instant digital presentation media product via Microsoft Office Powerpoint 2019 based on interactive multimedia. Productive Electricity lessons in the form of interactive learning CDs.

Research subjects are people, objects, or things that are attached to the research variables. The research subjects studied at here are 12 Class X students of the Department of Electrical Engineering. Before being tested on students, the research media was given to media experts, design, and content experts for validation to determine whether or not the media was suitable for testing. According to [Mawarni & Muhtadi \(2017\)](#), this process aims to determine the feasibility of the product, both from material and media aspects. So that all research data can be collected properly, an evaluation instrument is needed that can package all aspects that need to be assessed ([Dosi & Budiningsih, 2019](#)).

The instruments used to collect data in this development research were questionnaires and interview guides. The questionnaire used by the researcher is a closed interview questionnaire, which is a questionnaire presented in such a way that the respondent only needs to mark the appropriate column. The questionnaire used was a design and learning media expert questionnaire, a content/learning media expert questionnaire, a student characteristics questionnaire, a student needs questionnaire, an individual trial questionnaire, a small group trial questionnaire, and a teacher assessment/response questionnaire. From the questionnaire, the results will be obtained in the form of qualitative data which will then be processed into quantitative data using existing data analysis to determine the percentage of achievement of successful development research conducted by researchers. Respondents in this case were design/media experts and content/material experts to measure the level of validity, and teachers and students to measure the level of practicality. The [Formula 1](#) used to calculate the percentage of each subject is:

$$Percentage = \frac{\sum(\text{The Answer} \times \text{Weight of Each Choice})}{N \times \text{Highest Weight}} \times 100\% \quad (1)$$

The note \sum is the amount and N is the number of all questionnaire items Furthermore, to calculate the percentage of all subjects use the formula $F: N$ (F is the total percentage of all subjects and N is many subjects). To be able to give meaning and decision-making to the characteristic questionnaire, the conversion [Table 1](#) is used as follows.

Table 1. Conversion of Student Needs Analysis Achievement Levels

No.	Achievement Level	Qualification	Information
1	90% - 100%	Very Good	Alternative Media
2	75% - 89%	Good	Alternative Media
3	65% - 74%	Enough	Need Multimedia
4	55% - 64%	Not Enough	Need Multimedia
5	0% - 54%	Very Less	Need Multimedia

([Arikunto, 2006](#))

Table 2. Conversion of Media Validation Achievement Levels

No.	Achievement Level	Qualification	Information
1	90% - 100%	Very Good	Very Valid
2	75% - 89%	Good	Valid
3	65% - 74%	Enough	Revised
4	55% - 64%	Not Enough	Revised
5	0% - 54%	Very Less	Revised

(Arikunto, 2006)

Table 3. Conversion of Media Practicality Achievement Levels for Teachers

No.	Achievement Level	Qualification	Information
1	90% - 100%	Very Good	Very Practical
2	75% - 89%	Good	Practical
3	65% - 74%	Enough	Pretty Practical
4	55% - 64%	Not Enough	Less Practical
5	0% - 54%	Very Less	Impractical

(Arikunto, 2006)

Table 4. Conversion of Media Practicality Achievement Levels for Students

No.	Achievement Level	Qualification	Information
1	90% - 100%	Very Satisfactory	Very Practical
2	79% - 89%	Satisfying	Practical
3	69% - 70%	Enough	Revised
4	55% - 60%	Not Enough	Revised
5	0% - 50%	Very Less	Revised

(Arikunto, 2006)

RESULTS AND DISCUSSION

Results

Results of Identification of Student Needs

Identification of student needs was carried out on February 8 2023 after initial observations and free interviews were carried out with the head of the Electrical Engineering department and the Electrical Basics subject teacher. Based on the learning objectives contained in the Basic Electricity & Electronics Textbook, researchers identified students' initial knowledge of the topics contained in the sub-chapters of the textbook. Identification of needs was carried out through a needs analysis questionnaire for all class X students of the Department of Electrical Engineering, SMK Darussalam Makassar. According to Morrison, in analyzing needs, it is necessary to pay attention to four steps, namely; (a) Planning, by classifying who will be involved in the activity and how it will be collected. (b) Data collection, considering the size of the sample in its distribution (distribution). (c) Data analysis, after the data is collected then the data is analyzed with consideration of economic factors, ranking, frequency, and needs. (d) Make a final report, with four items, starting from Junaidin (2022) presentation of data through a questionnaire which is divided based on learning objectives as follows in Table 5 and Table 6.

Table 5. Table of Descriptions of Students' Abilities and Needs for Material Basic Electrical and Electronics Subjects

No.	Description of Student Abilities and Needs
1.	Know the History and Basic Concepts of Electricity
2.	Know the Materials of Electrical Components
3.	Know the Electric Current Circuit
4.	Know the Properties of Passive Elements in Direct Current Circuits
5.	Know the Properties of Electrical Elements
6.	Know the Definition of Electrical Energy
7.	Know the Instruments for Measuring Electrical Quantities and their Functions

Table 6. Table Description of Results of Students' Abilities and Needs for Basic Electrical and Electronics Subject Material

No.	Respondents	Description of student abilities and needs							Amount	Average Percentage
		1	2	3	4	5	6	7		
1	R1	3	3	2	2	2	3	3	18	51%
2	R2	3	4	3	2	3	1	3	19	54%
3	R3	2	3	2	2	1	2	3	15	43%
4	R4	3	3	3	2	2	2	3	18	51%
5	R5	2	3	4	3	2	3	3	20	57%
6	R6	3	3	4	4	5	3	5	27	77%
7	R7	4	4	5	3	3	3	5	27	77%
8	R8	3	3	3	2	2	2	4	19	54%
9	R9	3	3	3	3	2	2	4	20	57%
10	R10	3	3	4	4	3	3	3	23	66%
11	R11	3	3	3	4	3	4	5	25	71%
12	R12	3	1	4	2	4	2	3	19	54%
13	R13	3	4	4	4	2	3	2	22	63%
14	R14	3	3	3	4	3	4	4	24	69%
15	R15	2	3	2	2	1	2	3	15	43%
N Amount										59%

The results of the needs analysis questionnaire showed that students' understanding of the subject matter of discussion of programming was in inferior qualifications with an achievement level of 59%, and based on the interview data on the needs analysis, data was obtained that one of the things that caused the low ability of students was that teachers were not optimal in using learning media digital-based so that it has not been able to optimally increase student learning motivation. Therefore, learning media is needed, namely interactive multimedia PowerPoint presentation media.

Design and Media Expert Validation Test Results

Validation of multimedia learning media from validators was carried out to assess the design of multimedia learning media in simulation and digital communication subjects. Validators assess the media prototypes developed through questionnaires (Hutabri, 2022). Validation of the development product was declared valid by media experts and content experts. Based on the validation results from media experts, after converting into a table conversion, a percentage achievement level of 90%, is in the excellent qualifications and is at the very valid category level. Based on the results of design expert validation, after being converted into the conversion table the achievement level percentage is 88%, which is in good qualifications and is at the valid category level. Based on the validation results of content experts, after being converted into a conversion table the percentage achievement rate is 91%, is in very good qualification, and is at a very valid category level.

Media Practicality Test

In terms of practicality in learning media, several aspects need to be considered that support the media. The first is that the media is seen from the formats available, the time used and the costs incurred. The second is the suitability of students, namely the suitability of media content with the development and experience of students, and the third is the suitability of educators, namely the suitability of the media with the learning carried out by educators and being able to facilitate students to understand the material through the media developed (Milala et al., 2022). The level of practicality in this study was seen through the application of interactive multimedia in the learning process which was obtained from the results of teacher, observer, and student questionnaires (Kumalasani, 2018). As a development product that has been revised based on a design expert test and learning media with a content/learning material expert test, it is then handed over to 3 students who are selected based on learning achievement by the subject teacher. Based on the results of the

assessment through a questionnaire, it can be seen the percentage of individual trials of interactive multimedia presentation media PowerPoint 2019, as follows:

$$\text{Percentage of Student 1} = \frac{48}{10 \times 5} \times 100\% = 96\%$$

$$\text{Percentage of Student 2} = \frac{43}{10 \times 5} \times 100\% = 86\%$$

$$\text{Percentage of Student 3} = \frac{32}{7 \times 5} \times 100\% = 90\%$$

The PowerPoint presentation media shows that the percentage of student 1 is 96%, with very satisfactory qualifications, the percentage of student 2 is 86%, with satisfactory qualifications, the percentage of student 3 is 90%, with very satisfactory qualifications, and is at the practical category level so the media interactive multimedia PowerPoint presentation 2019 doesn't need to be revised. The next development product was handed over to 9 students who were selected to be divided into 3 groups consisting of 3 students. Based on the results of the assessment via questionnaire, it is known that the percentage of group trials on the 2013 version of multimedia-based PowerPoint presentation media is as follows:

$$\text{Group Percentage 1} = \frac{44 + 47 + 45}{(10 \times 5) 3} \times 100\% = 91$$

$$\text{Group Percentage 2} = \frac{44 + 34 + 40}{(10 \times 5) 3} \times 100\% = 79$$

$$\text{Group Percentage 3} = \frac{38 + 38 + 43}{(10 \times 5) 3} \times 100\% = 79$$

$$\text{Percentage of Entire Group} = \frac{91 + 79 + 79}{3 \times 100} \times 100\% = 83\%$$

The average 2019 interactive multimedia PowerPoint presentation media was 83% in good qualifications and at the practical category level so there was no need for revision. The learning media is then assessed by teachers in the basics of electricity subject. Based on the results of the assessment via questionnaire, the average percentage of interactive multimedia Powerpoint 2019 presentation media can be seen, as follows:

$$\text{Percentage} = \frac{55}{11 \times 5} \times 100\% = 100\%$$

After being converted into a conversion table, the achievement level percentage is 100%, is in the very good qualifications, and is at the category level which is very practical to use. The basic electricity subject teacher at Darussalam Vocational School, Makassar, was greatly helped by interactive multimedia presentations. With the use of developed presentation media, awareness and interest in the importance of developing and developing skills in creating and using presentation media, especially Microsoft Office PowerPoint, has become higher.

Application of presentation media interactive multimedia PowerPoint 2019 version requires a strategic environment. The right environment at SMK Darussalam Makassar is a learning environment that is supported by adequate facilities and infrastructure in the form of conducive classrooms, the provision of a computer lab supported by LCD projector facilities, and an internet connection.

Discussion

Needs Analysis for Interactive Presentation Multimedia

The results of the needs analysis show that students' understanding of the subject matter of programming discussion is at very low qualification. Therefore, learning media is needed, namely

interactive multimedia PowerPoint presentation media. Multimedia provides an alternative to providing information on electrical tools and materials through components presenting various forms of various media. [Batubara \(2021\)](#) says that "multimedia is software that uses more than one type of media in presenting information. Multimedia gives the impression of direct experience to students because it does not only provide visualization but combines all types of learning media, namely writing images, audio, video, and digital animation. This is in line with Edgar Dale's theory which states that the more directly something is learned, the more real the knowledge gained and vice versa ([Purba et al., 2020](#)).

Development Design

PowerPoint 2019 presentations on the Productive Subject of Electrical Engineering with material discussing the basics of electricity and electronics. This product combines all multimedia components and is packaged interactively according to the design contained in the storyboard. This product combines the distinctive style of three presentation applications known as slide Zoom with a variety of interesting transitions and animations. Zoom slide or Slide Zoom is the newest style of Microsoft Office PowerPoint today. By combining morph transition animations, the media display of PowerPoint presentations becomes more lively and attractive, supported by the level of interactivity. The level of interactivity of the 2019 Microsoft Office PowerPoint version can be adjusted in such a way by users by maximizing multimedia functions and the latest updated features. Multimedia products and interactive presentations containing learning material content for the basics of electricity and electronics including four chapters of discussion for 1 semester, converted in the form of writing, images, video, audio, and digital animation.

Validity of Interactive Presentation Multimedia

The development product is declared valid by media experts and content experts. Based on design aspects which include the quality of the theme display, color, suitability of the font to the media, quality of the media layout design, suitability of the media theme to the subject, and quality of the slide show display, it shows that the media developed is worthy of being tested. Use of slide zoom and morph transition features Microsoft Office PowerPoint version 2019 allows users to combine animated transitions and objects according to their abilities and creativity. Stated that: The use of consistent design, interesting types of writing, the use of animation, and also pictures can attract children's attention. But remember, don't display a lot of text, insert an image that provides dozens of information ([Sufiatmi et al., 2020](#)). Meanwhile, based on media aspects which include presentation quality, hyperlink/action menu features, media features, the attractiveness of slide show visualization along the suitability of the media and learning materials, it is stated that the media developed is worthy of being tested. States that "Powerpoint media is a form of software that is created and designed to be usable and able to display multimedia that is attractive and easy to make and easy to use ([Herlina & Saputra, 2022](#)).

Presentation media were developed based on the clarity of textbook content, the suitability of content with learning objectives, the suitability of media with learning objectives, the suitability of media with learning objectives, the presentation of concrete/simple material, using standard language and the suitability of material content with student needs was declared worthy of being tested. The use of media for abstract teaching materials can be concreted and create conditions for learning to become more interesting ([Sufiatmi et al., 2020](#)). Presentation media is media that contains content in the form of writing, images, video, audio, and digital animation. [Wijayanti & Relmasira \(2019\)](#) explain that learning using PowerPoint media is designed for interactive learning and increases students' interest in learning because in learning PowerPoint is designed in such a way starting from selected material, animations, and hyperlinks ([Herlina & Saputra, 2022](#)).

Practicality of Interactive Presentation Multimedia

Teacher assessment and response to the basics of electricity and electronics are in very good qualifications and are at the level of the very practical category to use. Based on this, interactive multimedia PowerPoint 2019 presentation media can be an alternative solution and solve one of the problems in the learning process, namely in the learning process of students. In particular, the

advantages of interactive multimedia PowerPoint 2019 presentation media developed by researchers are combining all the view slide show concepts from 3 types of applications for presentations, namely PowerPoint, Prezi Desktop, and Focussky. With this combination, the media being developed becomes more interesting in its broadcast. The interactive multimedia PowerPoint 2019 presentation media developed can convey information according to student learning methods because it provides complete multimedia features to make it easier for teachers in the teaching and learning process in the classroom.

Advantages and Disadvantages

The advantages of multimedia-based presentation media compared to other learning media are being able to combine all types of learning media so that they can be used for all characteristics and ways of learning of students. In particular, the advantages of interactive multimedia PowerPoint 2019 presentation media developed by researchers are combining all the view slide show concepts from 3 types of applications for presentations, namely PowerPoint, Prezi Desktop, and Focussky. With this combination, the media being developed becomes more interesting in its broadcast. The interactive multimedia PowerPoint 2019 presentation media developed can convey information according to student learning methods because it provides complete multimedia features to make it easier for teachers in the teaching and learning process in the classroom. According to [Newby et al., \(2000\)](#) the advantages possessed by interactive learning multimedia as learning media), among others, are providing learning with good information storage, learning designs aimed at students with different learning characteristics, directly aimed at certain effective learning domains, presenting realistic learning, can increase student motivation, requires students to be more interactive, learning activities are more individual, have consistency in the material provided and students have control over each individual's learning speed ([Nopriyanti & Sudira, 2015](#)). In general, it can be interpreted that interactive media is a delivery media system that presents recorded video material with computer control to viewers (students) who not only hear and see video and sound but also provide an active response and that response determines the speed and sequence of presentation ([Nurseto, 2011](#)).

According to [Batubara \(2021\)](#) the characteristics of interactive multimedia lie in its interactivity features. The effectiveness of multimedia can be seen in several advantages of multimedia, including a) the use of several media in presenting information. b) Ability to access up-to-date information and provide deeper and more information. c) It is multi-sensory because it stimulates many of the senses, so it can lead to good attention and retention levels. d) Attract attention and interest, because it is a combination of sight, sound, and movement. Moreover, humans have limited memory. e) Alternative media in conveying messages reinforced with text, sound, images, video, and animation. f) Improving the quality of information delivery. g) It is interactive and creates. The two-way relationship between multimedia users. Interactivity that allows developers and users to create, manipulate, and access information ([Munir, 2013](#)).

Teachers of the basics of electricity at SMK Darussalam Makassar are greatly helped by interactive multimedia presentation media. With the use of developed presentation media, awareness and interest in the importance of developing and developing skills in creating and using presentation media, especially Microsoft Office PowerPoint, has become higher. The implementation of the interactive multimedia version 2019 of PowerPoint presentation media requires a strategic environment. The right environment at Darussalam Vocational School, Makassar, is a learning environment that is supported by adequate facilities and infrastructure in the form of classrooms that are conducive enough, providing a computer lab that is supported by LCD projector facilities and an internet connection.

Interactive multimedia requires skills and knowledge to operate. Teachers are required to increase knowledge and develop abilities in creating interactive media as stated by [Prastowo \(2015\)](#) interactive learning is a communication method where interactive requires adequate supporting knowledge and skills from the media used in the learning process, especially in operating the equipment used to support students' ability to understand the knowledge being taught ([Trimansyah, 2021](#)). Teachers must be able to choose the right media in the learning process, including the media

used must pay attention to several provisions, with the consideration that the use of media must be truly effective and effective in improving and clarifying students' understanding. Learning media helps reduce the abstractness of a concept of the material being taught, leading students to a meaningful learning experience, activating and enjoyable (Fonna et al., 2022).

PowerPoint presentation media based on multimedia includes the use of media tied to certain types of PC or laptop qualifications so that its use must be adjusted accordingly. The solution to the problems in using PowerPoint presentation media version 2013 is to create 2 different types of files, namely the editing and final. Files editing is a file in the form of a project that is used to re-edit if there is an error or the user wants to change the contents of the presentation made, while the final file is a permanent presentation media that displays presentations instantly in the form of a PowerPoint slide show format. In addition, a PC or laptop that has a low capacity can open the 2019 version of Office PowerPoint files using the previous versions, namely Office PowerPoint 2013 and 2016 so that many users can still use them.

PowerPoint's weaknesses include (1) Not all material can be presented using PowerPoint (2) Requires special skills to convey good messages or ideas in the design of the Microsoft PowerPoint computer program so that it is easily digested by the recipient of the message (3) Requires careful preparation when using complex presentation (animation) techniques (Kamil, 2018).

CONCLUSION

Based on research and discussion, it was concluded that the results of the analysis of needs for multimedia-based presentation media stated that interactive multimedia presentation media using Microsoft Office PowerPoint version 2019 was needed. The media design results are multimedia presentation media using Microsoft Office PowerPoint version 2019 which contains three styles of digital presentation media applications combined with the latest Microsoft Office PowerPoint features, namely zoom slides, and morph transitions to create an attractive slideshow. Interactive multimedia presentation media using Microsoft Office PowerPoint version 2019 contains lesson material on the basics of electricity and electronics for 1 semester in class electrical symbols. The evaluation results of learning media experts and learning media content/material experts show that the 2019 version of the multimedia-based PowerPoint presentation media produced is declared valid.

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