

Genially Interactive Media to Boost Interest in Learning Electrical Basics in Vocational Schools

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ABSTRACT

This development research aims to create interactive media based on *Genially* for the subject of “Fundamentals of Electrical Engineering.” The study aims to assess the product’s feasibility and analyze the learning interest of vocational high school (SMK) students after using this interactive learning tool. The research follows the Four-D model (Define, Design, Develop, Disseminate). The results indicate that the developed interactive learning media is highly suitable for use as a learning tool for 10th-grade vocational high school students. Based on the combined validity results of the product, a score of 92% was obtained, categorizing it as highly feasible for use as a learning medium. Additionally, the implementation results showed a learning interest score of 89%, categorized as very high, indicating that students have a high interest in Basic Electricity, specifically in the elements of electrical measuring instruments and testing tools, when using the *Genially-based* interactive learning media.

I. INTRODUCTION

The advancement in information and communication technology (ICT) is currently progressing at a rapid pace and has had a significant impact on various fields of life, including education. One method of applying information and communication technology in teaching and learning activities is to utilize it as a learning resource and as an innovative and creative learning media for students. [1], [2]. Educators' use of engaging learning media can help students learn and understand lessons rather than merely listening to what the teacher conveys through lectures. [3]. Learning media are effective instruments for enhancing students' interest during learning activities and supporting students to avoid feeling bored during the learning process. [4], [5], [6]. The use of media supported by information and communication technology can provide an enjoyable learning experience for students when they feel bored with the conventional teaching methods applied by teachers. [7]. The utilization of ICT-based learning media can be an effective alternative to increase students' interest in learning materials, especially in the current digital era. [8].

Learning media that utilize the development of information and communication technology has been widely used in the field of education. However, there are still several challenges that need to be addressed, including low student interest in learning. The lack of engagement and academic performance of

students indicates that the implementation of learning media in the classroom environment has not been optimal. [9]. The utilization of learning media in the teaching and learning process can enhance students' learning motivation, allowing them to participate actively and enthusiastically in learning activities. [10]. To increase student engagement in the learning process, the media used must be engaging, interactive, and relevant to current technological developments. [11]. Learning media can be web-based, so students do not require large storage capacities. [12]. Web-based learning tools offer significant benefits for students and teachers, including (1) helping students understand the material more intensively, (2) allowing students to study independently and study anywhere; (3) supporting teachers in carrying out interactive learning activities, (4) contribute to improving learning standards in schools [13]. Therefore, it is important to improve the quality of ICT-based learning media, especially website-based learning media, to increase students' interest in learning.

One way to improve the quality of web-based learning media is through the development of interactive and engaging media. The development of interactive learning media is also expected to be easily accessible via the internet or software by students. This web-based learning media can be accessed efficiently without diminishing students' understanding of the material and learning objectives [14]. One online learning application that supports teachers in creating creative and

innovative teaching materials, including presentation materials, educational games, instructional videos, and various other resources [15].

Genially-based learning media offers numerous advantages that assist teachers in creating more interactive learning media. *Genially* excels in creating games and, being an online platform, requires only a link for usage without the need for manually transferring presentation data. *Genially* also allows integration with media from external platforms such as YouTube, Spotify, and others [16]. Other advantages that *Genially* has are (1) ease of adaptation and operation; (2) content that can be processed easily; (3) simple customizable buttons; (4) unlimited versions and adaptations; (5) support for teamwork; (6) the existence of an active community of content creators; (7) its high accessibility [17]. These advantages make *Genially* an ideal tool for interactive learning in today's digital era. *Genially* can help students learn more effectively and efficiently, and can help teachers create interesting and interactive learning content.

The subject of Basic Electricity is a compulsory course in the Electrical Engineering expertise program curriculum, encompassing both theoretical learning and practical exercises. In the study of Basic Electricity according to the Merdeka Curriculum, the subject falls into Phase E and includes nine achievement elements that must be completed over two semesters.

Based on the results of observations carried out during the implementation of Teaching Assistance activities at Vocational School PGRI 3 Malang, several problems were found in the learning process in the electricity generation class in the Basics of Electricity theory subject. The learning process still relies on conventional methods, namely lectures, question-and-answer sessions, and discussions. During the learning process, the majority of students tend to be inactive, and only a small portion of students pay attention to the teacher. This conventional teaching method is not yet complemented by interactive digital-based learning media. Consequently, many students feel bored and have a low interest in the subject. When students become bored with the teacher's explanations, they tend to prefer playing or talking with their peers, which inevitably leads to a lack of understanding of the material being taught.

Similar problems are also experienced by other vocational schools, this is known based on the results of observations and distribution of online questionnaires to students who have carried out Teaching Assistance (AM) at SMKN 6 Malang, SMK Turen, SMK Muhammadiyah 7 Gondanglegi, and SMKN 1 Blitar. There are several obstacles experienced during the learning process, including: (1) The only learning resources are modules and books from school; (2) Lack of interactive learning media; (3) There is no free internet access for students; (4) Students' interest in learning is still lacking in learning. Based on the existing obstacles, according to the results of observations, interactive learning media related to the Basics of Electricity Subject are needed. Overcoming existing challenges, efforts and innovation need to be made in the teaching and learning process. The use of modern technology in developing learning media in the Basics of Electricity subject can be the answer to generating students' interest in learning.

The application of technology in creating learning media that will be used in this research uses the help of a platform *Genially*. This also requires support from schools to provide free internet facilities that students can access.

Based on the results of research conducted by Ratniati & Hasan entitled Development of Physics Learning Media with the Snakes and Ladders Game Using the *Genially* Platform on the Subject of Impulse Momentum at SMAN 1 Badar T.P 2021/2022, the media has been declared to meet the Eligible criteria according to the validation of two physics lecturers as media and material experts, and Very Practical based on student responses. Thus, the physics learning media with the snakes and ladders game uses a platform *Genially* considered feasible and effective to be applied to class X MIA-3 students at SMAN 1 Badar Aceh Tenggara [18].

The research conducted by Khoirun, et al (2022) with the title Efforts to Increase Student Interest in Learning Through *Genially* Media in Indonesian Online Learning in Class The Interest in Learning class [19]. Based on the results, all indicators have increased, and the average percentage of student interest in learning has increased by 17.94%. Based on the results, all indicators have increased, and the average percentage of students' interest in learning has increased by 17.94%. Therefore, it can be concluded that *Genially* media can increase students' interest in learning, especially in the indicators of student enthusiasm during the learning process and students' interest in learning.

Based on the data presented above, it sparked the author's interest in developing media-based learning *Genially* which is not only practical and interesting, but also interactive which is expected to help in the learning process. The learning media developed is not only in the form of plain text but is also equipped with audio, video and practice questions. These features make learning media more interesting and interactive for students.

This research plays an important role in helping the learning process to increase students' interest in learning. With this, the author conducted research and development with the title "Development of *Genially* -based Interactive Learning Media to Increase Interest in Learning Basics of Electricity at Vocational School Level". This research takes elements from measuring instruments and electrical test equipment. Learning outcomes in the elements of measuring instruments and electrical test equipment include material on measuring instruments and electrical test equipment as well as electrical power systems and digital techniques. There is a reason for taking this material because this material is the key to understanding how the electrical system works. In addition, by studying this material students can repair electrical systems. This material not only teaches theory but also carries out practicums, so this learning media is expected to be able to provide initial knowledge for students before carrying out practicum learning. This development research aims to produce interactive learning media products based on *Genially*, as well as to determine the increase in student interest in learning the Basics of Electricity subject for class X vocational school students.

II. METHOD

This research uses the model development method Four-D. This development model has 4 development stages consisting of Definition, Planning, Development, and Deployment.

Development stages using models Four-D are as follows:

A. Define

At the define stage, there are five stages, namely initial analysis, student analysis, task analysis, concept analysis, and learning objective analysis. Initial analysis is used to identify obstacles that arise during the learning process in the Basics of Electricity subject. Student analysis aims to understand the needs and characteristics of students which will be adapted to the demands of the curriculum and existing learning materials. Task analysis aims to select the main material that will be integrated into the learning media being developed. Concept analysis aims to determine the content that will be integrated into the learning media that will be developed. Learning objective analysis aims to determine the learning objectives that students want to achieve, which are based on achievement indicators that have been set in the curriculum.

B. Design

The design stage is a product planning process *Genially* which is carried out after completing the definition stage. At this stage, there are 4 main steps carried out, the final result of this stage is the menu display *Genially* for measuring instruments and electrical test equipment. The stages carried out at the design stage are as follows: a) Feasibility Instrument Design; b) Media Selection; c) Format Selection; and d) Initial Design.

C. Develop

After the planning stage, the next stage is the development of media-based learning *Genially* according to what already exists at the level of planning. At the development stage, there are 2 steps, namely expert validation and development testing by small groups and large groups.

D. Disseminate

The final stage is distribution which is carried out after the media developed has been deemed suitable by experts. Disseminate is carried out in classes that are used as trials and distributed via links.

There are 2 subjects for this research and development, namely expert validators and class XI students at SMK PGRI 3 Malang. The first subject is a validator consisting of 3 experts, namely two lecturers in Electrical Engineering and Informatics as media experts and material experts as well as a teacher majoring in Electrical Engineering as material experts.

The type of data obtained in this development research is in the form of qualitative and quantitative data. Qualitative data was obtained from descriptions of criticism and suggestions from trial subjects who tested the feasibility of learning media. Data Quantitative in the form of a percentage value of the feasibility test assessment results obtained from calculating the

questionnaire score. The assessment criteria for closed questionnaires are based on the scale *Likert* 1-5.

The data collection technique in this research uses qualitative data analysis techniques by observing and quantitatively using questionnaire instrument sheets. Researchers validated the product with media experts and language experts.

Data processing obtained from expert validation tests and student responses are processed using the following formula [20];

$$Va = \frac{TSe}{TSh} \times 100\% \dots \dots \dots (1)$$

Keterangan:

Va = Expert validation

TSh = Total expected maximum score

TSe = Total empirical score (validation results from validators)

After the data has been analyzed, the next step is to process and draw conclusions by referring to the scale *Likert* listed in Table 1. This table outlines the validation criteria for learning media which confirms that the resulting product will be considered feasible and effective enough to be used if it meets the minimum percentage weight requirement of 70.01%.

TABLE I. ELIGIBILITY CRITERIA

No.	Criteria	Validity Level
1.	85,01%-100,00%	Feasible, or applicable without revision
2.	70,01%-85,00%	Worth using with minor revisions
3.	50,01%-70,00%	Not suitable for use and needs major revision
4.	01,00%-50,00%	Can not be used

To find out the measurement of interest categories Study students towards the media that has been developed can be seen in the following Table 2.

TABLE II. LEARNING INTEREST CRITERIA

No.	Score Achievement Level	Category
1	76-100%	Very high
2	51-75%	Enough
3	26-50%	Less
4	0-25%	Very low

III. RESULTS AND DISCUSSION

A. Results

This development research produces interactive media-based learning products *Genially* Electricity Basics subject. The material presented is (1) electrical measuring instruments; (2) electrical test equipment; and (3) basics of digital engineering. This interactive learning media consists of several pages, namely user manual pages, introduction, CP/ATP, concept maps, materials, learning videos, practice questions, simulators, glossaries, reference sources and developer profiles. There are four main pages, namely: (1) The concept map in Figure 1 is a page that appears after the user selects an option

from the main menu, displaying several sub-materials available for students to study; (2) Learning Video in Figure 2, presents videos related to the material being taught; (3) Quiz in Figure 3, practice questions are provided in which there are 15 optional questions as student evaluation material; (4) the simulator in Figure 4, contains applications and websites that students can use in practical learning independently according to the material presented.

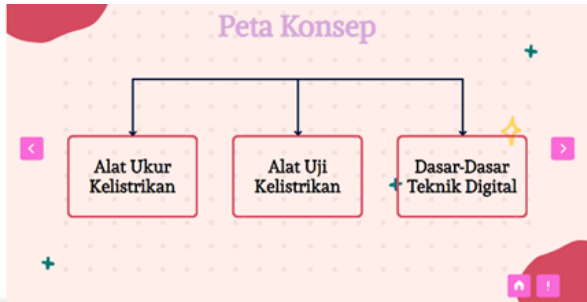


Fig. 1 Concept Map



Fig. 2 Learning Video



Fig. 3 Quiz



Fig. 4 Simulator

After designing and developing interactive learning media based *Genially* on the Basics of Electricity subject, the next stage is to carry out a validation test with experts using a questionnaire. Validity testing is carried out by media experts and material experts and requires student responses using a questionnaire. Processing the trial questionnaire data obtained the following percentage values:

TABLE III. MEDIA EXPERT VALIDATION RESULTS

No	Assessment Aspects	Tse	Tsh	Va	Criteria
1.	Visual	62	70	88,6%	Decent without revision
2.	Operation	9	10	90%	Decent without revision
3.	Interactivity	14	15	93,3%	Decent without revision
Amount		85	95	89,5%	Decent without revision

From Table 3, the average expert validation results obtained from the media was 89.5% with details of the final score for the visual aspect being 88.6%, operation being 90%, and interactiveness being 93.3%. The scores obtained from media expert validation are included in the appropriate criteria without revision.

TABLE IV. MATERIAL EXPERT VALIDATION RESULTS

No	Assessment Aspects	Tse	Tsh	Va	Criteria
1.	Curriculum	95	95	95%	Decent without revision
2.	Material	94	96	95%	Decent without revision
3.	Evaluation	100	80	90%	Decent without revision
Amount				93%	Decent without revision

From Table 4, the average material expert validation result is 93% category feasible without revision. Details of the final score for the curriculum aspect are 95%, the material aspect is 95% and the evaluation aspect is 90%.

TABLE V. SMALL GROUP TRIAL QUESTIONNAIRE RESULTS

No	Assessment Aspects	Tse	Tsh	Va	Criteria
1.	Media	348	400	87%	Decent without revision
2.	Material	241	280	86%	Decent without revision
3.	Evaluation	72	80	90%	Decent without revision
Amount		661	760	88%	Decent without revision

Based on Table 5, the average small-group trial results are 88% with the appropriate category without revision.

TABLE VI. LARGE GROUP TRIAL QUESTIONNAIRE RESULTS

No	Assessment Aspects	Tse	Tsh	Va	Criteria
1.	Media	1388	1500	93%	Decent without revision
2.	Material	968	1050	92%	Decent without revision
3.	Evaluation	281	300	94%	Decent without revision
Amount		2637	2850	93%	Decent without revision

From Table 6, the average results of large group trials on the development of *Genially*-based interactive learning media received a score of 93% in the feasible category without revision.

TABLE VII. STUDENT INTEREST QUESTIONNAIRE RESULTS

No	Assessment Aspects	Tse	Tsh	Va	Criteria
1.	Feeling happy	799	900	89%	Very high
2.	Student interest	529	600	88%	Very high

No	Assessment Aspects	Tse	Tsh	Va	Criteria
3.	Student attention	548	600	91%	Very high
4.	Student engagement	658	750	88%	Very high
	Amount	2534	2850	89%	Very high

Based on the results of the interest questionnaire calculations carried out on large groups after using the interactive learning media that had been developed, the average result was 89% with the criteria for very high student interest.

B. Discussion

Based on the qualification value from media members, the interactivity aspect obtains a score of 93.3%. The interactive aspect of developing interactive learning media can push students to learn because they can control learning media independently and have interactive elements that can attract students' attention. Interactive learning media can attract students' attention and students will feel happy in learning activities [21].

Based on the feasibility value from the material expert, the aspect that received the highest score was the curriculum and material aspect with a feasibility value of 95%. In the curriculum aspect, there are two indicators which include suitability to learning outcomes and learning objectives which are considered to be by students' needs. In the material aspect, six indicators are considered to have met the very appropriate category the content of the material is by needs and up to date, the scope of the material presented is complete, and the learning reference sources used in preparing the material are appropriate. Based on this, the expert validator stated that the content in the learning media was suitable for testing by making revisions according to the suggestions given first. The criteria for expert response to this material, as a whole, as from the results of previous research, show that this application is suitable for use, can guarantee its usability aspect and can support usefulness by learning objectives [22], [23].

Based on the feasibility scores from the student trials, the highest aspect of evaluation is obtained with a value that amounted to 94% and was in the feasible category without revision. A good evaluation can provide an overview of the quality of good learning. A good evaluation is possible give motivate and increase students' interest in learning [24].

In analysing students' learning interests, all aspects can be identified own very high categories. Based on the data on student interest in learning, it can be seen that students have a high interest in learning after using interactive learning media *Genially*. In the attention aspect, it got the highest score on the student interest questionnaire at 91% with criteria very high. In this aspect, it can be seen that students have a high curiosity in independent learning. Apart from that, students can do practice questions provided on the interactive learning media developed. Interactive learning media can help students focus on learning because the attention of students during the learning process can make the learning process effective and efficient [25].

IV. CONCLUSION

The resulting product is a *Genially*-based interactive learning media for the Basics of Electricity subject, which

includes chapters on electrical measuring instruments, electrical testing equipment, and the basics of digital engineering. Data analysis revealed a feasibility percentage with an average of 93% from material experts and 89% from media experts, resulting in a combined validity value of 92%, indicating the media is "very suitable for use." The product's feasibility was further supported by small group trial assessments at 88% and large group trials at 93%, both rated as "very suitable for use," with a learning interest level of 89% categorized as "very high." Overall, the *Genially*-based interactive learning media is considered "very feasible" for use. To optimize the use of this media in learning, several suggestions include: (1) Teachers can utilize the media to support the learning process; (2) Students can use it as teaching material to gain additional insights during class or independently; (3) The product can be disseminated to other schools using links while considering the learning objectives to ensure effective distribution; (4) Future researchers could develop further materials, questions, videos, and simulators in line with technological advancements, and consider uploading the products to school servers to prevent slow access.

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