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# APPLICATION OF POWTOON-BASED AI TECHNOLOGY IN MAKING ENTREPRENEURSHIP TEACHING MATERIALS

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**ABSTRACT**

Technological advances with various other implications also require a greater role for the world of education, especially for teachers who use different technologies, methods and approaches in conveying material and values to students. A teacher's ability to adapt to technological developments has become an inevitability that cannot be avoided. This research aims to find out and develop a product, namely Powtoon learning media for entrepreneurship subjects and analyze the feasibility of Powtoon learning media products based on experts. Based on research obtained at SMK Negeri 1 Mundu, the results show that the development of Powtoon learning media has a feasibility percentage of 83.75% (feasible). Student learning outcomes were proven to have increased in obtaining a minimum score of 70 and a maximum score of 100. The gain test showed that 18 students obtained high score criteria and 9 students obtained medium score criteria. In the student response questionnaire, the percentage was 93.4% (very eligible). Thus, it can be stated that the Powtoon learning media is suitable for use in entrepreneurship learning. It is also hoped that this research can help students and the instruments involved in the process of teaching and learning activities.

**Keywords:** artificial intelligence, powtoon, teaching materials

## INTRODUCTION

Artificial Intelligence (AI), Artificial Intelligence is a technology created to create computerized systems to imitate human intelligence. The development of artificial intelligence technology in recent years has brought major changes in various fields of academics and education (Gugun Geovani & Suarifqi Diantama, 2023). AI is the ability of a machine to understand its environment to take actions that maximize its chances of success in a goal (Verma, 2023). Artificial Intelligence continues to develop with concepts such as learning, adaptation, and decision making. This has been proven in the last few decades, with the development of artificial intelligence technology which has had a major impact on various fields of science (Namasudra et al., 2021). One area that has been greatly impacted is education, which is experiencing quite rapid technological progress. In the educational process, technological advances make learning more accessible and easier to do. The existence of this technology plays an important role in human life today, facilitating various activities both in daily life and academic activities (Avicena & Syofyan, 2023). In the world of education, technology and education are two sides of the same coin and cannot be separated (Deliviana, 2017). Technological advances with various other implications also require a greater role for the world of education, especially for teachers who use different technologies, methods and approaches in delivering material and values to students. To improve the quality of education, the world of education must continue to monitor and adapt to technological developments. One of the adjustment factors related to teaching is learning media, where this learning media needs to be mastered by teachers, so that they can deliver learning material to students in a good, efficient and effective manner, also learning activities using learning media are able to make students has the potential as expected (Pendidikan et al., 2013).

Learning is a process where students or learners actively participate in the understanding process in their own way. In the 2013 Curriculum, learning media are learning resources and learning support resources, as

referred to in Minister of Education and Culture Regulation Number 103 of 2014 as the dynamics that occur between students, educators and learning resources in an environment. The role of learning media is very important in creating optimal learning conditions. Effective use of learning media increases interaction between teachers and students and helps students better understand the information presented. Therefore, the presence of learning supporting media in the learning process is very important, so that it can make learning interactive, creative and communicative (Azizah et al., 2024).

In Indonesia itself, there is still a lot of education that uses traditional learning methods, where traditional learning focuses more on the active activities of the teacher or instructor, while students are only seen as passive creatures who only receive input from the teacher. The conventional learning model, which is also called the traditional approach, is a learning model that teachers use in everyday learning by using a general model without adapting the appropriate model based on the nature and characteristics of the subject matter being taught (Maria Magdalena, 2018). In its implementation, teachers can use visual aids to clarify the explanations given to students. Therefore, teachers or lecturers must innovate in carrying out activities, especially technology and information-based, so as to be able to encourage higher education teaching reform (Yana et al., 2019). The use of inappropriate teaching methods has a less than optimal impact on student learning outcomes. A more efficient learning process is one of the factors causing low learning outcomes.

Learning outcomes lead to changes in behavior that tend to take place over a certain period of time in the cognitive, affective and psychomotor domains (Kusrino et al., 2020). Mainstream education found, meaning that mainstream education has no effect on student learning outcomes (Masamah et al., 2023)(Ruhulessin et al., 2019). Among the various results of technological advances, animated video applications are one example of technology that has been successfully used as an interesting learning medium and makes it easier to deliver teaching materials so that students can receive them more quickly. Animated videos help teachers visualize abstract material and concepts. Animated video media can avoid misunderstandings in the learning process, so that students can fully receive and understand the material, ideas and messages designed by the teacher (Anita, 2019).

According to Fitriana (2014), animated video media is a tool that can be used as an aid in the teaching and learning process, it can stimulate students' thoughts, feelings and motivation through moving picture illustrations accompanied by narrative sound and serves to clarify the meaning of the message to be conveyed, so that it can achieve learning goals better and more perfectly (Sudrajat & Marzuki, 2010). Using animated videos as a learning medium can prevent teacher explanations from being difficult to understand and students becoming bored, making them easier to understand and varied. The use of animated video learning media in the learning process can increase motivation, interest and learning outcomes (Sukiyasa & Sukoco, 2013). On the other hand, (Lee & Owens, 2004) argue that the use of animation and special effects is very good and effective in attracting students' attention in learning situations from the beginning to the end of the learning process (Deliviana, 2017). Technology-based learning media should be considered as an alternative for independent learning that can be used in the learning process in class or when learning at home (Luqman Hidayat et al., 2017). Meanwhile, computer-assisted learning is a learning system that creates meaning by combining academic content and technical background (Liana, n.d.). Computer-based media is often called learning multimedia. Multimedia-based learning systems (technology that includes audio, images and video) can present learning material in a more interesting and less monotonous manner and make delivery easier (Rohinah, 2016). Currently, there are many applications that can be used as educational multimedia. One of them is the Powtoon application which is an application for creating online and offline based animated video presentations.

Powtoon was created in January 2012. Powtoon is an IT-based web application that can be used as a learning medium which includes interesting features such as features for creating presentations or animated

videos that can be used easily and interestingly. Powtoon is available offline and online. Powtoon offers superior animation features such as image animation, cartoons, transition effects, and easy-to-use timelines. Based on the explanation above, researchers plan to study the development of learning media using the Powtoon application. In this context, Powtoon is a type of animated video that can be used as a learning media. Powtoon is an animated video creation application that can be used as learning media (Pratama et al., 2021). The advantage of Powtoon is its ease of use and the end result in the form of an interesting video. The powtoon application can be accessed by anyone, including teachers and students (Kholilurrohman, 2017). Media Powtoon offers a wide selection of animations to arouse student interest and increase the efficiency of the learning process.

This application will make student learning more interesting and effective. It is important to use Powtoon media to develop entrepreneurship learning because traditional methods are less interesting and less effective in stimulating students' interest and understanding of complex entrepreneurial concepts. Powtoon can visualize complex concepts through engaging animations, graphics and icons, as well as stimulate students' senses and emotions through the use of fun sounds, images and animations. In addition, Powtoon provides adaptability, accessibility, and flexibility in accessing and modifying entrepreneurship learning materials, thereby increasing students' interest, involvement, and understanding of the field (Khofifah & Kamalia, 2022). Powtoon is also able to make it easier for students to understand the material that educators want to convey because the material looks more interesting (Qurrotaini, 2020). By presenting animations that are interesting and easy to understand, this animated video can increase students' interest and enthusiasm in the learning process and increase understanding of the content presented. The use of creative and innovative learning media such as animated videos can create a more positive and interactive learning experience for students (Avicena & Syofyan, 2023).

**METHOD**

This method section contains the type of research, research subjects, data collection instruments, and data analysis. At this stage the researcher chooses development research or research and development (Sugiyono, 2016). According to Sujadi, development research is a procedure or method for creating a new item or making or improving an existing item and can be accounted for (Hilmi 2016, 2016). The product developed in this research is a powtoon animation video. This research uses a 4-D model, namely, Defining (Define), Planning (Design), Developing (Development) and Disseminating (Disseminate) (Trianto, 2010). Research in April 2024 at SMK Negeri 1 Mundu as the target subject for class XI TKPI II amounted to 27 students. In this case the researcher collected data using quantitative and qualitative data types. Quantitative data was obtained from the results of expert validation questionnaires and user questionnaire surveys, namely the pre-test and post-test results of XI TKPI II students. Meanwhile, qualitative data was obtained from expert validation through extensive student response forms. Validation information obtained from the results of expert evaluations in the form of suggestions and comments was analyzed descriptively and qualitatively. Next, the data will be used to review the Powtoon learning environment for researchers. The Likert scale can then be used in the results of data analysis, turning qualitative assessments into quantitative assessments. At the conclusion of the data analysis, it can be interpreted using the feasibility percentage, which can be seen in Table 1.

**Table 1. Eligibility Criteria**

| Percentage (%) | Criteria |
| --- | --- |
| 0-20 | Totally Not Worth It |
| 21-40 | Not Feasible |
| 41-60 | Decent Enough |

| Percentage (%) | Criteria |
|---|---|
| 61-80 | Worthy |
| 81-100 | Very Worth It |

**RESULTS AND DISCUSSION**

The research results are based on the 4-D development model, namely Define, Design, Development, and Disseminate. First, at the definition stage, the results were obtained that SMK Negeri 1 Mundu used the independent curriculum as the basis for the learning process implemented. Apart from that, it is known that the media used by teachers is less flexible, causing learning to become boring. The average age of TKPI class XI students is 16-17 years. According to Piaget, this age reaches the formal stage (Agung et al., 2019). At this age students find it easier to think concretely and abstractly. That way, learning material that contains abstract theories is easier for students to understand. Meanwhile, in entrepreneurship material, students have difficulty understanding the material because of the large amount of material being studied. Next, they must understand and remember the sub-material presented. To find out whether the learning objectives have been achieved or not. Researchers gave test questions in a pre-test – post-test format (10 multiple choice questions). Second, the design or planning stage describes the product that will be produced, namely the Powtoon animated video. Products are developed according to needs and based on the material studied. The appearance of media products can be seen in figure 1 and 2 below.



**Figure 1. Opening Display**



**Figure 2. Learning Content**

The third step, the learning media development stage, is validation by experts, to test the practicality of the learning media created. In the validation of material experts by expert lecturers, the value results were obtained, which can be seen in Table 2. Furthermore, in the media validation by media experts, the value results were obtained, which can be seen in Table 3.

**Table 2. Material Expert Validation Results**

| Aspect | Statement | Score |
|---|---|---|
| Material Aspects | a. The suitability of the concepts explained in the video with the concepts put forward by experts | 4 |
| | b. Well organized material | 4 |
| Content Feasiblity Aspect | a. Requires curiosity | 3 |
| | b. Encourage seeking further information | 3 |
| Content Evaluation Aspect | a. Conformity of evaluation to learning objectives | 3 |

| Aspect | Statement | Score |
|---|---|---|
|  | b. Appropriateness of the evaluation form to the concept presented | 3 |
| Aspects of Freedom | a. Use of language that is easy to understand | 3 |
|  | b. Use of language that does not give rise to multiple interpretations | 3 |
|  |  | 26 |

$$P = \frac{f\ (total\ validation\ score)}{N\ (maximum\ score)} \text{ x } 100$$

$$P = \frac{26}{32} \times 100\% = 81{,}25\ \%$$

From the results of material expert validation, it can be seen that the developed *powtoon* media obtained a percentage of 81.25%, which shows that the media is included in the very worth it criteria so that it meets the criteria and the material is suitable for testing.

**Table 3. Media Expert Validation Results**

| Aspect | Statement | Score |
|---|---|---|
| Display Quality | a. Picture quality | 4 |
|  | b. Font text size | 3 |
|  | c. Colour and font | 3 |
|  | d. Existing images and videos convey complex concepts visually and dynamically, and the clarity of the images explains the material concepts | 3 |
|  | e. Attractive video display | 3 |
| Linguistic Aspect | a. Use of language that is easy to understand | 3 |
|  | b. Use of language that does not give rise to multiple interpretations | 3 |
| Sound Aspect | a. Sound Volume | 4 |
|  | b. Musical Instrument Accompaniment Support | 4 |
|  | c. Sound clarity level | 3 |
| Ease of Use Aspect | a. Ease of Using Animation Video | 4 |
|  | b. Practicality in Using Animation Video | 4 |
|  |  | 41 |

$$P = \frac{f\ (total\ validation\ score)}{N\ (maximum\ score)} \text{ x } 100$$

$$P = \frac{41}{48} \times 100\% = 85{,}41\ \%$$

From the media expert validation results, the entrepreneurship material obtained a percentage of 85.41%, which shows that the media is included in the very valid criteria so that it meets the criteria and the media is valid for testing. In the suggestion column submitted by the researcher, the media expert also added that the language of the material should use communicative language, so that researchers examine the material

using communicative language. The assessment results from material validation and media validation are known, then the percentage of validity of the product being developed can be calculated. The following is the formula for calculating product validity.

$$P = \frac{f\ (total\ validation\ score)}{(maximum\ score)} \times 100$$

$$P = \frac{67}{80} \times 100\% = 83{,}75\ \%$$

If we look at the validation results of 2 material and media experts, the percentage of results obtained increased to 83.75%, so it can be concluded that powtoon-based learning is included in the very valid criteria. Thus, it is concluded that the powtoon-based learning media developed is declared valid and can be tested. After validating the powtoon-based learning media from the material validator and media validator, the researcher continued the research by conducting field trials at SMK Negeri 1 Mundu. In this stage the researcher gathered 27 class XI TKPI students.

Researchers began the research by distributing pretest questions to students which aimed to find out students' main skills or knowledge regarding entrepreneurship material. Before using and testing Powtoon-based learning media. After all students completed the pre-test, the researcher asked students to pay attention to the material explained and follow the powtoon-based media. Researchers also asked students to see directly and use Powtoon media. Then, after students understood the Powtoon-based learning material, the researchers gave post-test questions designed to find out whether the students' scores increased or decreased after using the Powtoon media that was developed. After the post-test, the researcher also asked students to fill out a practicality questionnaire regarding the powtoon media that had been used. The results of the pretest & posttest scores can be seen in table 4.

**Table 4. Student Pretest-Posttest Score Results**

| No | Name | Min. Score | Score | | Post-pre | Ideal Score (100)-Pre | N-Gain | N-Gain Score Percent | Note |
|----|------|------------|-----|------|----------|------------------------|--------|----------------------|------|
| | | | Pre | Post | | | | | |
| 1 | J | 70 | 70 | 100 | 30 | 30 | 1 | 100 | High |
| 2 | M | 70 | 20 | 90 | 70 | 80 | 0,87 | 87,5 | High |
| 3 | SP | 70 | 20 | 100 | 80 | 80 | 1 | 100 | High |
| 4 | IND | 70 | 40 | 80 | 40 | 60 | 0,67 | 66,66 | Medium |
| 5 | RB | 70 | 10 | 100 | 90 | 90 | 1 | 100 | High |
| 6 | RH | 70 | 70 | 100 | 30 | 30 | 1 | 100 | High |
| 7 | DA | 70 | 70 | 80 | 10 | 30 | 0,33 | 33,33 | Medium |
| 8 | KI | 70 | 60 | 100 | 40 | 40 | 1 | 100 | High |
| 9 | RI | 70 | 50 | 80 | 30 | 50 | 0,6 | 60 | Medium |
| 10 | RT | 70 | 30 | 100 | 70 | 70 | 1 | 100 | High |
| 11 | YDS | 70 | 50 | 90 | 40 | 50 | 0,8 | 80 | High |
| 12 | IN | 70 | 50 | 100 | 50 | 50 | 1 | 100 | High |
| 13 | WAP | 70 | 30 | 100 | 70 | 70 | 1 | 100 | High |
| 14 | MA | 70 | 70 | 80 | 10 | 30 | 0,33 | 33,33 | Medium |
| 15 | OS | 70 | 30 | 90 | 60 | 70 | 0,85 | 85,71 | High |
| 16 | RP | 70 | 60 | 100 | 40 | 40 | 1 | 100 | High |
| 17 | SY | 70 | 30 | 100 | 70 | 70 | 1 | 100 | High |
| 18 | RR | 70 | 70 | 80 | 10 | 30 | 0,33 | 33,33 | Medium |

| No | Name | Min. Score | Score | | Post-pre | Ideal Score (100)-Pre | N-Gain | N-Gain Score Percent | Note |
|---|---|---|---|---|---|---|---|---|---|
| | | | Pre | Post | | | | | |
| 19 | JJ | 70 | 60 | 100 | 40 | 40 | 1 | 100 | High |
| 20 | HK | 70 | 40 | 90 | 50 | 60 | 0,83 | 83,33 | High |
| 21 | MF | 70 | 40 | 80 | 40 | 60 | 0,67 | 66,6 | Medium |
| 22 | TS | 70 | 80 | 90 | 10 | 20 | 0,5 | 50 | Medium |
| 23 | TN | 70 | 20 | 70 | 50 | 80 | 0,6 | 62,5 | Medium |
| 24 | MS | 70 | 90 | 100 | 10 | 10 | 1 | 100 | High |
| 25 | AF | 70 | 80 | 100 | 20 | 20 | 1 | 100 | High |
| 26 | DM | 70 | 70 | 100 | 30 | 30 | 1 | 100 | High |
| 27 | KI | 70 | 30 | 70 | 40 | 70 | 0,5 | 57 | Medium |
| | Average | | 49 | 91 | 4 | 50 | 0,81 | 81,46 | |

$$< g > = \frac{posttest - pretest}{100 - pretest}$$

$$< g > = \frac{91,4 - 49,6}{100 - 49,6} = 0,82$$

Based on the table above, it can be concluded that using Powtoon media is able to increase student effectiveness by proving that the pretest scores obtained have the lowest score of 10 and the highest score of 90. Meanwhile, the posttest scores have increased with the lowest score being 70 and the highest score being 100. So the gain test stated that 18 students obtained high score criteria and 9 students obtained medium score criteria. After obtaining the value results from the evaluation provided. Furthermore, the learning media response questionnaire that has been obtained can be seen in the following diagram.
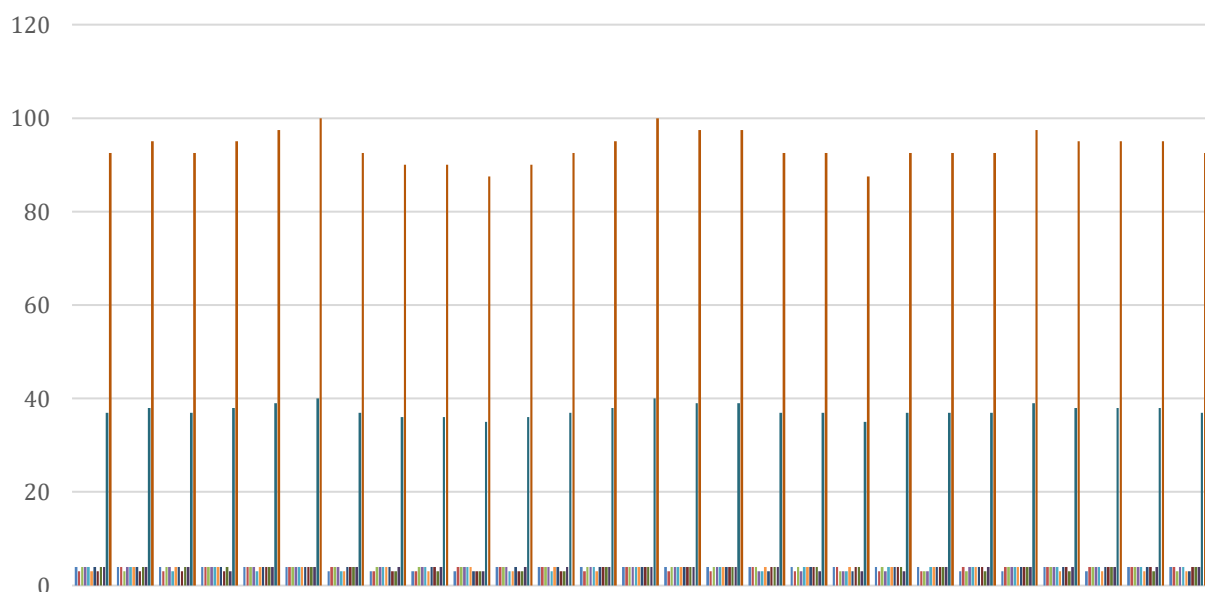


**Figure 3. Student Response Questionnaire Result Diagram**

$$P = \frac{f \ (total \ validation \ score)}{N \ (maximum \ score)} \ x \ 100$$

$$P = \frac{2522}{2700} \times 100\% \qquad = 93,4\ \%$$

Based on the diagram above, the percentage of student responses to learning media based on Powtoon animated videos received a student response of 93.4%. This percentage is included in the criteria of being very practical and effective to use. Thus, the developed Powtoon-based learning media can be said to be very practical if used in learning entrepreneurship material for students at SMKN 1 Mundu class XI.

**Discussion**

The results of the analysis of Powtoon learning media based on the 4-D development model, namely, Define, Design, Development and Disseminate are included in the very good category. This shows that Powtoon learning is suitable for use in the learning process. This media is worth using from several points of view. First, the presentation of the material is made in a complex manner, also in the chapters where the material is presented, attention is paid to language preparation so that students can understand the material and make it easier to understand. Increasingly advanced technological developments mean that various information can be used both online and offline with tools that are easily accessible (Pangestu. D. M. & Wafa. A. A., 2018). So students can easily access it through various media.

Then, the appropriateness of the media consisting of appearance, color, letters, images and sound. In this case, media preparation must pay attention to several aspects such as sound, animation and images to increase knowledge and experience. In addition, media presented in the form of structured images facilitates teacher participation in students' associative processes (Supriyono, 2018). Nieveen (Fatmawati, 2016) stated that the assessment of the validity of learning tools is measured based on validation results. Judging from the results of the presentation of the material, Powtoon media is included in the relevant criteria. This can be seen from the validation carried out by validators, namely material and media experts. The results of the validation of the entrepreneurship material obtained a score of 67 points out of a total score of 80 points, and the percentage can be calculated as 83.75%, which shows that the material is included in the very valid criteria so that it meets the criteria and the material is valid for testing. The use of media can also optimize students' motivation and interest in learning (Ismawati, 2017). Because actually a good learning process will create an effective learning process (Jundu et al., 2019).

The effectiveness of learning media is used to measure student learning outcomes. Nieveen (Zulkarnain & Jatmikowati, 2018) said that a learning tool is recognized as quality if it meets three criteria, namely valid, practical and effective. The evaluation validation scores obtained from experts were categorized as "Decent", so that the formulation of questions tested on students was able to encourage increased thinking power. Making 10 questions containing all the material is in accordance with current basic competencies. The grammar used also does not give rise to multiple interpretations for students, so the questions are easier to understand. And in the end the score obtained by the student reaches the goal or is above the applicable minimum completeness criteria average. The gain test results obtained were 0.82 in the "High" category. After receiving learning media in the form of Powtoon videos, students are generally more active and responsive when receiving material packaged in the form of animated videos. Several factors found in the field, namely packaging material into animated videos and good relationships between teachers and students, contribute significantly to improving learning outcomes. In addition, student enthusiasm can influence the improvement of student learning outcomes by monitoring ongoing learning. According to research (Rupawati, 2016), it is known that learning through audio-visual videos causes an increase in learning outcomes (Awalia et al., 2019). Therefore, Powtoon learning media has been proven to be able to improve learning outcomes, especially for class XI TKPI II students at SMK Negeri 1 Mundu on

entrepreneurship material. In this study, the researcher developed entrepreneurship material on Powtoon media for class XI TKPI students.

The level of practicality of learning media is obtained from limited testing. Teaching materials are said to be practical if users can easily use the teaching materials, This research shows that students are able to understand the material presented and are more active in the learning process (Putri et al., 2019). The limited test was carried out on April 23 2024, which was attended by 27 students. The level of practicality was measured by a response questionnaire given to students regarding the Powtoon media. The instructional quality variable, one of the variables measured, received a percentage value of 93.4% from students who were given a response questionnaire related to the level of practicality of the media. Apart from that, learning Powtoon is very interesting and fun because the material packaged helps students respond better to the learning material, especially in entrepreneurship lessons. Apart from that, the pre-test & post-test questions are packaged in such a way that students enjoy the process more enthusiastically, because initially students who were less enthusiastic after showing an animated video became more enthusiastic in following the material presented. Because students focus more on the learning process which involves visualization rather than listening to the teacher's explanation (Ariyanto et al., 2018).

Based on the results of previous research, powtoon media can be used in the learning process (Nurdiansyah et al., 2018). Powtoon media can also be used to improve learning outcomes and student motivation (Aliyyah & et. al, 2018). The presence of animated videos as a medium in the learning process at school optimizes student learning motivation (Alannasir, 2016). Thus, it is hoped that this media can increase students' learning motivation and understanding of entrepreneurship material. Students will be more enthusiastic if learning media is packaged in the form of videos equipped with animation, images and sound. And students' abilities are really taken into account in accordance with an applied scientific approach. So that media becomes a tool for successful learning in the implementation process. And in the end, it is in line with the aim of this research which is to develop a product, namely learning media in the form of powtoon-based animated videos.

**CONCLUSION**

From the results of this research it can be concluded that powtoon is an effective learning media in relation to entrepreneurship learning in vocational schools. This powtoon-based learning material is quite flexible in presenting the material. powtoon provides flexibility in presenting material with interesting images and animations. This makes learning more interesting and easier for students to understand, as well as improving the quality of teaching and learning. So that learning is not monotonous and is more interesting for students, various PowerPoint animations can be used during learning. Transitions between animations are also designed not too fast and not too slow so as to optimize students' understanding of the material. Powtoon media uses simple language that is easy for students to understand. Presenting material in precise and clear language helps students better understand the concept of entrepreneurship, and Powtoon media also has audio settings to help students learn. Audio and video background sound can be adjusted according to needs during the learning process. With the validity of Powtoon as an effective entrepreneurship teaching tool in vocational high schools, animated video learning using Powtoon is proven to be able to increase teaching effectiveness, increase student motivation, and increase students' understanding of entrepreneurship concepts. After this research, the researcher recommends continuing the development of Powtoon-based animated videos on entrepreneurship at the vocational school level and other educational levels.

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