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## E-Module Project Based Learning (PjBL) using Sigil in Basic Vocational Subjects

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### Keywords:

*E-module, Project Based Learning (PjBL), Sigil.*

### ABSTRACT

There is no learning media that uses the Sigil application, so learning media was created using the Sigil application aims to test the level of validity, practicality, and effectiveness of the Project Based Learning (PjBL) E-Module Using Sigil in the Basic Vocational Subject for Grade X Students. The development model in this study uses the development model (ADDIE) with the following steps: (1) Analyze, (2) Design, (3) Development, (4) Implementation and (5) Evaluate. The research subjects were 31 people. The validity test of the E-Module Using Sigil in the Basic Vocational subject obtained a result of 92.73%, with the interpretation of very valid to use. The practicality test of the E-Module using Sigil in the Basic Vocational subject obtained a result of 93.81%, with the interpretation of very practical to use. Meanwhile, the overall effectiveness test results for the E-Module using Sigil in the Basic Vocational subject were 89.29% very effective to use. Thus, it can be concluded that the Project Based Learning (PjBL) E-Module using Sigil in the Basic Vocational subject has been tested for its feasibility, excellence, and can be used in learning activities in the Basic Vocational subject for Class X at SMKN 1 Singkarak.

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## Introduction

Learning activities are influenced by various components such as curriculum, teaching materials, learning media, student characteristics and evaluation of the activities carried out. (Darmansyah, 2010). According to Law No. 20 of 2003 concerning the National Education System, Article 1 paragraph 20, learning is a process of interaction between students and educators and learning resources and in a learning environment. In learning activities, there are learning objectives to be achieved by students. The achievement of these learning objectives can be supported through the learning model chosen by the teacher, the methods used and learning media that support learning activities. The selection of the right learning media greatly influences the achievement of the expected competencies of students. Sefriani et al., (2022), Sefriani, Rini. Wijaya, 2018). In line with what was stated by Wijaya et al., (2020) that the right media in learning can increase motivation and achievement of learning objectives.

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Learning media is any tool that can be used to convey messages to achieve learning objective. Learning media is a tool to help in the learning process both inside and outside the classroom. It is further explained that learning media is a component of learning resources or physical media that contains instructional material in the student's environment that can stimulate students to learn. Arsyad, (2011). Learning media is an important element in achieving the competencies that students are expected to have. (Hakiki & Sefriani, 2022)(Rahmatullah et al., 2021).

The achievement of expected competencies from students is the main objective of implementing learning. Learning activities in Vocational High Schools (SMK) are learning that produces graduates who are ready to enter the world of work. The principle of Vocational High Schools is that students have the competencies needed by the world of work. Rasto, (2012) & Yolanda et al., (2021). The achievement of competencies possessed by vocational high school students can be maximized by using learning media that support teaching materials. So that it is expected that there will be ownership of student learning experiences using media. According to Herawati & Muhtadi (2018) E-module or electronic module is a module in digital form, consisting of text, images, or both containing digital electronic material accompanied by simulations that can and are appropriate to be used in learning. According to Fausih et al. (2015), E-module is learning material that is systematically designed based on a certain curriculum, and packaged in the form of a certain time unit, which is displayed using electronic devices such as computers or Android. According to Dimhad (2016) the definition of E-module is: E-module is part of electronic based e-learning whose learning utilizes information and communication technology, especially electronic devices. This means not only the internet, but all electronic devices such as films, video cassettes, OHP, slides, LCD Problemors, tape sets.

According to Wahyuni (2019), project based learning is a learning model that provides opportunities for educators to manage classroom learning by involving project work. Another opinion was also put forward by Mayuni et al. (2019), who stated that the project based learning (PjBL) model is a model, strategy, or learning method that is centered on students. Where students are invited to develop their own abilities by creating learning projects (activities), so that it is hoped that they can develop their creativity and critical thinking skills will be built by using this model where to complete a project requires effort and hard work and work cooperatively with groups. Project based learning is a learning model that provides opportunities for educators to manage classroom learning by involving project work. Another opinion was also put forward by Mayuni et al. (2019), who stated that the project based learning (PjBL) model is a model, strategy, or learning method that is centered on students. Where students are invited to develop their own abilities by creating learning projects (activities), so that it is hoped that they can develop their creativity and critical thinking abilities by using this model, where to complete a project requires effort and hard work and working cooperatively with the group.

There are several applications for creating learning media, one of which is the Sigil application. Sigil is an open source epub editor software. Epub (electronic publication) is a digital format that is a standardized format introduced by the International Digital

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Publishing Forum (IDPF) in 2011. In February 2022, the Ministry of Education, Culture, Research and Technology officially launched the independent curriculum. The independent curriculum is a learning method that refers to the talent and interest approach. In general, the independent curriculum is a diverse intracurricular learning curriculum. Where the content will be more optimal so that students have enough time to explore concepts and strengthen competencies. This curriculum is to strengthen the achievement of the Pancasila student profile developed based on certain themes set by the government. Where the project is not directed to achieve certain learning achievement targets, so it is not tied to subject content.

Based on the results of interviews conducted with teachers and students of class X PPLG at SMK Negeri 1 Singkarak, teachers stated that in learning activities the teaching materials used were textbooks, modules, models, audio teaching materials and interactive teaching materials held by students and there were no additional teaching materials used by teachers in the learning process. In utilizing the PPLG learning module, it is still not optimal, for example, providing material only in the form of PPT and sending material via WhatsApp, even the use of E-modules as learning media has never been used. Based on the learning atmosphere and the lack of learning media, it is a problem that must be considered. Utilizing e-modules during the learning process will attract more students' attention as a teaching material media will have an effective impact, because students will be more enthusiastic about new and more interesting things. Utilizing e-modules during the learning process will attract more students' attention as a teaching material media will have an effective impact, because students will be more enthusiastic about new and more interesting things..

The absence of e-module learning media in basic vocational learning, therefore, it is important to create e-modules for Basic Vocational subjects and make it easier for teachers to deliver materials in class. Based on the results of interviews with Basic Vocational subject teachers, it was informed that e-modules have not been used as teaching materials because SMK Negeri 1 Singkarak uses teaching materials in the form of printed books, PPT for educators and students. So far, educators have used more printed student books to deliver materials to students. Based on this explanation, the author is interested in creating an E-learning module and making it the author's final assignment with the title "Development of Project Based Learning (PjBL) Learning E-modules Using Sigils in Basic Vocational Subjects."

### **Research Methods**

The type of research contained in this article is research and development (R&D), namely the type of research used to produce certain products (Sugiyono, 2014). The development model used as a reference is the ADDIE development model, namely Analysis, Designs, Development, Implementation and Evaluation (Priambudi & Sutopo, 2024). (Boa Sorte & Kim, 2023). This research was conducted at State Vocational High School 1 Singkarak, West Sumatra. The subjects of the study were grade X students majoring in Software Development and GIM. Sampling is done using purposive sampling, data collection was carried out through questionnaires, literature studies, observations and training (learning evaluation). To conduct the validity test, media experts were involved, namely 3 lecturers and 1 teacher, for the practicality test, teachers and students were requested, and the effectiveness test involved students. The following is the implementation of the ADDIE development steps for

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the products being developed. ADDIE stands for analysis, design, development, implementation and evaluation. The define stage is the stage of defining and determining learning terms. This stage includes several main steps, namely student analysis, concept analysis and formulation of learning objectives. This stage consists of 3 steps, namely: (1) Curriculum analysis, before designing this media, it first refers to the curriculum used with the aim of knowing the competency standards, basic competencies and indicators that must be achieved by students. (2) Media analysis, aims to produce products in the form of learning media for basic vocational subjects. (3) Student analysis, is carried out to determine the students' abilities which include academic abilities, age and psychomotor skills, especially the skills that the students already have. The design stage is designing the product to be made, then development which includes validity by the validator, the implementation stage is a practicality test and then the evaluation stage is carried out with a product effectiveness test. Data analysis is carried out based on quantitative data.

## Findings

This research and development resulted in an e-module product for the Basic Vocational subject, class X PPLG SMK N 1 Singkarak. The product produced went through several stages of testing, including validity, practicality, and effectiveness. The validity test stage involved experts related to the product produced, consisting of media experts and material experts. Appointment of validators is based on their scientific background and expertise. . Validation of learning media from the validator was carried out to provide an assessment of the media design material. It can be seen in Table 1 that the validator's assessment of the android-based blended learning media was reviewed from the aspects of content feasibility, language components, presentation components, and graphic components. Overall, the assessment by the validator of the android-based blended learning media was 92.73%, meaning that the product produced was very feasible or very valid for use in learning Basic Vocational. This is supported by research that also produced a validity test in the form of a video media product with a valid category (Sefriani & Sepriana, 2020) (Supandi, 2022) (Mastery, 2024). Other studies also revealed that the feasibility test of the product in the form of interactive learning media developed was in the valid category for use in learning (Ernawati, 2017). The assessment carried out by the relevant validator included the feasibility of the content, language components, graphic components, and discussion components. The results of the validity test in this study are presented in Table 1.

**Tabel 1.** Validitas Test

Aspek	Value	Descriptive Interpretation
Content eligibility	98.66	Very Valid
Assessment	96.66	Very Valid
Language Component	90.00	Very Valid
Presentation Component	93.33	Very Valid
Sum	378.65	
Averegae	94.66	Very Valid

Practicality test was conducted to determine the level of practicality of the e-module of the Basic Vocational subjects, class X PPLG SMK N 1 Singkarak. To find out whether the

product is practical or not so that it can be used practically by its users, namely students and lecturers. Thus, the resulting product is practical to use as seen in Table 2.

**Table 2.** Practicalitas test

Aspek	Value	Descriptive Interpretation
Condition of Use	92.19	Very Practice
Effectiveness of Learning Time	93.98	Very Practice
Benefit	92.77	Very Practice
Asesment	93.81	Very Practice
Sum	372.75	
Average	93.18	Very Practice

The effectiveness test on the e-module of the Vocational Basics subject, class X PPLG SMK N 1 Singkarak was carried out by providing practice questions for learning evaluation. To find out whether there is a difference between learning using the e-module of the Vocational Basics subject, class X PPLG SMK N 1 Singkarak with regular lectures. With an increase in value of 89.92%.

## Discussion

The research results revealed that the e-module produced had been tested for validity, practicality and effectiveness. The use of technology in creating learning media is widely used by education practitioners today. Such as using mobile learning as a form of learning development in the current digital era. (Martin & Ertzberger, 2013). This situation has an impact on the field of education which is marked by the emergence of many learning applications that present learning media. Previous research created an application or e-module by utilizing Android which is a more flexible mobile learning media. Online-based mobile learning provides opportunities for students to learn anytime and anywhere (Astalini et al., 2019). This is in accordance with what is expected by the researcher, namely to present flexible, valid, practical and effective learning media so that learning activities take place more flexibly. The achievement of learning objectives so that it has an impact on students' understanding of the teaching materials presented.

Research conducted by (YANI AWATI et al., 2021) by creating an e-module based on Sig software, it shows an increase in students' abilities in the cognitive and addictive aspects of students. Supported by research (Herwina et al., 2023) who found that the development of e-modules assisted by sigil software in high school history subjects showed a very valid level of validity, a practical level of practicality. These results indicate that the presence of e-modules in learning has a very positive impact on the achievement of learning objectives.. In line with research conducted by (Puspasari, 2022) which reveals that e-modules increase students' motivation and interest in participating in learning..

Different from Pebri Hastuti's research at Medan State University entitled "Development of Problem Based Learning-Based E-Module for Economic Subjects for Class X of SMA Negeri 1 Percut Sei Tuan in the 2018/2019 Academic Year". With the research method used is the Research and Development (R&D) method, with the research results obtained showing that the developed e-module is valid (feasible), effective and practical to use as teaching materials for teachers and students in the learning process based on the average overall score of aspects by material experts 3.46 very good category, the average

overall score of aspects by media experts 3.19 very good category, and the average overall score of aspects by student responses to the e-module 3.29 very good category. The reason is different from previous studies is that the study used the subject of Economics and was conducted at SMA Negeri 1 Percut Sei Tuan class X, while my research was conducted on the subject of Basic Vocational and was conducted at SMK Negeri 1 Singkarak.

Different from the research of Helna Satriawati, Yogyakarta State University entitled "Development of Interactive E-Modules as a Source of Learning Basic Electronics for Class X of SMKN 3 Yogyakarta". With the ASSURE learning development research method and the Instructional Multimedia (the IMM) Development Model development model. The results of this study are that learning is declared feasible with an average score of 88.12 out of a maximum score of 120.00 with a frequency distribution of 7.69%, stating "Quite Feasible", 76.92% "Feasible", and 15.38% "Very Feasible". The reason is different from previous studies is that the study used the ASSURE learning development research method, the Instructional Multimedia (the IMM) Development Model development model and Basic Electronics subjects, while my research was conducted on Vocational Basics subjects and used the R&D (Research and Development) research and development method, and used the ADDIE development model.

## **Conclusion**

Learning carried out by utilizing e-modules assisted by sigil software for vocational high school students in basic vocational subjects shows a positive impact on improving student learning outcomes, increasing student interest and motivation to learn by utilizing technological advances with the presence of learning media in an unusual form than before. The presence of e-modules assisted by sigil software that follows technological advances brings a new atmosphere to vocational high school student learning. So that it motivates students to do the assignments given by the teacher through the application of learning media. The presence of interesting and contemporary media provides a new atmosphere and different attractions for students in learning in the classroom. Technological advances followed by the presence of contemporary learning media will provide a fresh atmosphere for teachers and students. It is hoped that in the future there will be the development of better and different learning media in terms of design, content and appeal.

## **Recomendation**

The presence of learning media that follows current technological advances is highly expected to be carried out by subsequent researchers, so that the learning media available in educational institutions will be more varied.

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