

Development of E-Module Teaching Materials for Writing Explanation Texts Based on Project Based Learning for Class XI Vocational High School

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ABSTRACT

The lack of teaching materials used by educators, especially in the teaching of explanatory texts, has led to low learning outcomes among students. This is shown based on the results of observations, interviews with students, questionnaires to students, and supporting data through cognitive and non-cognitive diagnostic assessments. These data indicate that the low motivation and grades in explanatory text lessons among students are influenced by the unavailability of varied teaching materials. Based on this, the aim of this research is to produce teaching material products in the form of e-modules based on project-based learning, to test the feasibility of the product, and to test the effectiveness of the product for Grade XI vocational high school students in the teaching of explanatory texts.

This research uses the Research and Development method, which consists of 7 stages: (1) analysis of potentials and problems, (2) data collection, (3) product design, (4) product design validation, (5) product revision, (6) product feasibility testing, (7) product effectiveness testing. This research was conducted at SMK N Pagelaran Utara. Data collection techniques were carried out through observation, interviews, questionnaires, and assessment test sheets in 6 classes that were the objects of the research.

The results showed that (1) teaching materials for explanatory texts in the form of e-modules based on project-based learning for Grade XI vocational high school students were successfully developed and validated by material experts, media experts, and practitioners. (2) Teaching materials for explanatory texts in the form of e-modules based on project-based learning were declared very feasible by material experts, media experts, and practitioners with assessment percentages of 92%, 97%, and 95%. (3) Based on the effectiveness test, the explanatory text emodule based on project-based learning obtained an average N-gain index of (0.61) and (0.48) in Grade XI SMK N Pagelaran Utara, which falls into the medium category, thus the explanatory text e-module is declared effective for use in teaching.

Keywords: *e-module, project-based learning, explanatory text*

INTRODUCTION

The implementation of explanatory text learning in the classroom still experiences several problems. Based on a preliminary study conducted through observation and interview activities with several Indonesian language teachers of Class XI SMK Negeri Pagelaran Utara Pringsewu, there are various problems faced in learning explanatory text. Among them, it was found that students'

interest and understanding of explanatory texts are still low. Students tend to find it difficult to understand the structure and content of explanatory texts presented in printed form. This has an impact on the low learning outcomes of students in explanatory text material. Other problems are related to the limited availability of electronic learning materials, especially for explanatory text material, so that students' interest in learning is not good.

Based on the results of distributing questionnaires to students in Class XI of SMK Negeri Pagelaran Utara Pringsewu, it shows that there are several problems related to learning explanatory texts. First, it is related to the low interest and motivation of students in reading, students are lazy and lack enthusiasm in reading long story texts and do not understand the contents of the text well. This is supported by the results of the Cognitive Diagnostic Assessment conducted by Indonesian language subject educators related to explanatory text material.

Based on the results of the Cognitive Diagnostic Assessment related to explanatory text material, students' mastery of writing explanatory texts is still low. Of the 45 students, only 5 students (11.1%) got a score of 76 and above, which is categorized as proficient in writing explanatory texts. A total of 28 students (73.3%) got a score in the range of 60-70, which is categorized as basic understanding. The need for special intervention, there were 7 students (15.6%) who got a score below 60, which requires special intervention. Overall, the assessment results show that the mastery of explanatory text material by grade XI students is still low. The use of E-Modules is expected to help the learning process become more effective, increase students' independent learning attitudes, make learning more interesting and increase students' enthusiasm and interest, so that it is expected to improve students' learning outcomes. This is also supported by previous research conducted by Yuswanti (2020), who said that the electronic module for writing explanatory texts that she studied got a result of 82% with very feasible criteria

because it was able to foster students' enthusiasm in the learning process. In addition, Oktavia (2021) argued that the electronic module for writing explanatory texts in Indonesian that she created can make learning creative, active, and attract students' interest in learning. The results of her research obtained an average of 94.46% with very practical criteria.

Another study in the form of the Development of an Electronic Module Assisted by the Flipping Book PDF Professional Application for Learning to Write Explanatory Texts (Marizal, 2022), in Taiwan also said that electronic modules are used to provide remedial teaching to grade VIII students who have low academic achievement. Electronic modules can improve students' exam performance and enhance students' learning experience.

Based on several problems and several studies of journal articles that support these problems, researchers are interested in developing E-Module teaching materials for writing explanatory texts for grade XI vocational schools using the project-based learning model (PJBL).

LITERATURE REVIEW

1. Understanding Teaching Materials

Prastowo (2014) defines teaching materials as a set of materials that are arranged systematically, both written and unwritten, so that an environment or atmosphere is created that enables students to learn.

2. Function of Teaching Materials

Prastowo (2011), effective teaching materials must at least have learning guidelines, competencies that must be met, lesson content, additional sources, exercises, work instructions, evaluations, and responses to assessment results, because each learning outcome in teaching materials will always be accompanied by an evaluation to measure mastery of competencies, so the presence of teaching materials will greatly assist the characteristics of students from various backgrounds because they can be studied according to their abilities as well as a tool

for learning, and to evaluate mastery of learning outcomes. Teaching materials can have three different objectives depending on the learning approach used: individual, group, and classical learning (Prastowo: 2011).

3. E-Module (Electronic Module)

Electronic modules are one type of electronic-based online learning that utilizes information and communication technology, especially electronic gadgets. This includes all electronic devices, including films, video cassettes, OHPs, slides, LCD projectors, and tape sets, in addition to the internet (Dimhad, 2014). E-Modules are a means of independent learning with one source of learning. The use of E-Modules greatly prioritizes student independence. Productive subjects include those that call for independence (Moh Fausih, 2015).

4. Explanatory Text

Kosasih (2017), explanatory text is a text that explains the process of origin, process, or development of a phenomenon, whether natural, social, or cultural events. Explanatory text contains an explanation of the state of something as a result of something else that has happened before and causes something else to happen in the future. Based on the perspectives of various experts, it can be concluded that explanatory text examines the process of natural events, science, and aspects of social and cultural existence.

5. Project Based Learning (PJBL)

The general description of the project-based learning teaching methodology is to use systemic problems to facilitate students' understanding and assimilation of the material being taught. This model develops students' critical thinking skills through contextual means so that they can assess which choices are best taken to overcome existing problems.

According to Nurhadiyati, Rusdinal, and Fitria (2020), the project-based learning model is a cutting-edge educational approach that actively involves students in creating their own knowledge with the help of their friends in groups to complete

projects designed by the teacher. Project-based learning, which is student-centered and can undoubtedly encourage improved student learning outcomes, allows students to work individually or in groups.

6. Learning to Write Explanatory Texts with Project Based Learning

Learning models can be used to achieve learning objectives and improve students' learning capacity. According to several ideas, the Project Based Learning (PJBL) approach is suitable for teaching students how to create explanatory texts. The Project Based Learning (PJBL) learning model is in line with writing learning because it uses projects in implementing learning, providing opportunities for students to apply their skills in problem analysis, research, creation, and presentation of products based on their own experiences. High-level thinking skills can be trained using a project-based learning approach (Fitri, 2018).

The implementation of the Project Based Learning model has several steps, namely: opening lessons through challenging questions, planning projects to be made, preparing schedules to be worked on, supervising the progress of a project, and assessing the products produced. The implementation of this learning model must be adjusted to the Learning Implementation Plan (RPP) or teaching module if the term is in the independent curriculum. The learning process in class, and also the evaluation of the learning. According to Dolong (2016), planning is anticipating the use of resources to support actions taken successfully and efficiently in order to achieve goals. To ensure smooth learning, the learning plan must be prepared in accordance with these rules.

MATERIALS & METHODS

1. Research Design

This research design uses the research and development (R&D) method. The R&D research method is a research method used to produce certain products, and test the effectiveness of these products (Borg & Gall 1983). Simply put, R&D can be defined as a

research method that is intentionally, systematically, aimed/directed to find, formulate, improve, develop, produce, test the effectiveness of certain products, models, methods/strategies/ways, services, procedures that are superior, new, effective, efficient, productive, and meaningful. This research was conducted based on the results of the needs analysis and to test the effectiveness of the products produced in order to provide a positive impact in the form of problem solving for society, especially education. Therefore, R&D research aims to produce products.

R&D research emphasizes the results in the form of products that are useful for solving

existing problems. Therefore, this method is considered appropriate for use in this study because both expect the final result in the form of a product. The product to be produced is an E-Module that can be used for learning explanatory texts for grade XI vocational school students. The products that have been produced will also be assessed for their feasibility through expert validity tests. The following are the development steps based on the research and development method used to develop an E-Module for explanatory story texts based on the Basic Learning Project for grade XI vocational school students.

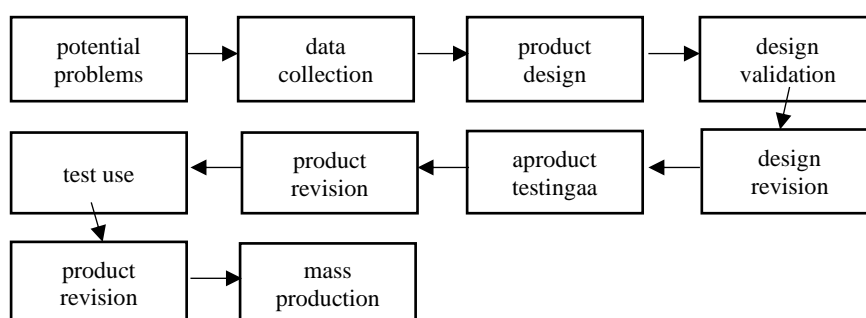


Figure 1 Borg and Gall Research and Development Stages (1983)

2. Research Procedures

Borg and Gall (1983) describe ten stages of research and development procedures, namely 1) research and information collecting or preliminary studies in the form of potential problems, needs measurement, and literature studies, 2) planning, 3) develop preliminary form of product (development of initial product design/draft), 4) preliminary field testing, 5) main product revision, 6) main field testing, 7) operational product revision, 8) operational field testing, 9) final product revision, 10) dissemination and implementation.

Of the ten steps, the research on the development of the Basic Learning Project (PJBL)-based explanatory text E-Module for grade XI vocational high school students only adopted seven stages, namely, analysis of potential and problems; data collection; product design stage; design validation stage; design revision stage; limited trial phase;

effectiveness test phase. The first step in this research is to analyze the needs to find out the potential and problems in the field.

3. Research Instrument

The research instrument used in this study as a tool to collect the data studied. In this study, the research instruments used consisted of three types, namely interview sheets, questionnaire sheets, and student learning outcome test sheets.

4. Data Collection Techniques

Documentation is done by reviewing documents related to teaching materials used in learning Indonesian. In addition, by reviewing learning tools, learning achievements, learning objectives, learning objective flows, teaching modules, teaching materials, media, and evaluation (assessment).

After obtaining the results of reviewing the documents, the researcher then collects data or information needed to develop teaching

materials. This information collection is in the form of literature reviews, information on learning objectives and information on materials that will be made into E-Module teaching materials. This explanatory story text E-Module is made to convey messages or lesson content so that it can stimulate students to learn.

After conducting a literature review, the next stage is to determine the material that will be included in the teaching materials based on the learning objectives of the Indonesian language curriculum for independent learning Phase F class XI, namely that students are able to write ideas, thoughts, views, metacognitive knowledge for various purposes logically, critically, and creatively.

Table 1 Results of Analysis of Learning Objectives and Learning Objective Flow

Learning Outcome Elements	Learning Outcomes	Learning objectives	Pancasila Student Profile
Write	Students are able to write ideas, thoughts, views, metacognitive knowledge for various purposes logically, critically, and creatively. Students are able to write various types of literary works. Students are able to write self-reflection texts. Students are able to write research results, functional texts on the world of work, and further study developments. Students are able to publish their written work in print, electronic, and/or digital media.	Students are able to write ideas, thoughts, views, metacognitive knowledge for various purposes logically, critically, and creatively.	Creative Independent Critical thinking

Source: Kemendikbud (2024)

5. Data Analysis Technique

This study uses qualitative descriptive data analysis techniques. The data analysis conducted is to review the expert trial validation sheet and the teacher questionnaire sheet. The following are the steps that will be taken in the data analysis process

- The analysis of the assessment sheets of material experts, media experts, and practitioners (Indonesian Language Educators) was changed from qualitative to quantitative form.
- After the data was collected, the average score of each aspect of the assessed criteria was calculated using the following formula.

$$\bar{X} = \frac{\sum X}{n}$$

$\sum X$: Total score
 \bar{X} : average score
 n : number of assessments

(Sudjana, 2010)

- After calculating the average score of all assessment criteria, it is then converted

into a percentage/proportion result. The percentage score is obtained by calculating the average answer based on the assessment instrument according to material experts, media experts, Indonesian language educators and grade XI vocational school students. The formula for calculating the percentage of eligibility of creative learning videos is as follows.

$$\text{Percentage} = \frac{\text{Total score generated}}{\text{maximum score}} \times 100$$

The score from the calculation will show the level of feasibility of the research in the form of an E-Module of explanatory text based on the Basic Learning Project (PJBL) for grade XI SMK students from material experts, media experts, educators and students as users, namely grade XI SMK. The percentage score results are then converted into qualitative data using score interpretation according to Riduwan & Sunarto (2017).

Table 2. Eligibility Level Criteria

No.	Score Range	Criteria
1.	< 21%	Totally Not Worth It
2.	21% - 40%	Not feasible
3.	41% - 60%	Decent Enough
4.	61% - 80%	Worthy
5.	81% - 100%	Very Worth It

d. The last stage after calculating the percentage of the feasibility of the E-Module explanatory text teaching material is calculating the effectiveness by calculating the average of the pretest, posttest, and N-gain. The gain score is the comparison of the actual gain with the maximum gain. The actual gain is the difference between the posttest score and the pretest score. The N-gain formula is as follows.

$$N - gain = \frac{posttest\ score - pretest\ score}{ideal\ maximum\ score - pretest\ score}$$

E-Modules are categorized as effective if the level of N-gain achievement is at least in the medium category. The N-gain effectiveness category refers to the N-gain interpretation criteria proposed by Meltzer (2002) as in Table 3.

Table 3. N-gain Interpretation Criteria

Normalized Gain Average	Interpretation Criteria
$g > 0,70$	Tall
$0,30 < g \leq 0,70$	Currently
$g \leq 0,30$	Low

RESULT

This research is a Research and Development (R&D) research that produces a product in the form of learning materials in the form of E Modules for learning explanatory texts. This study uses 7 research stages, namely: analysis of potential and problems; data collection; product design stage; design validation stage; design revision stage; limited trial stage; effectiveness test stage. The first step in this study is to analyze the needs to find out the potential and problems in the field.

The needs analysis begins with a literature study and observation, interviews with educators, and distributing questionnaires to students during the pre-research. In addition, researchers also analyzed the independent learning curriculum to review materials that are in accordance with the teaching materials developed, namely E Modules for writing explanatory texts based on Project Based Learning for SMA/SMK class XI students. After conducting problem analysis and data collection, the next stage is to design a product of learning materials in the form of E

Modules for Explanatory Texts based on Project Based Learning. At this product design stage, several criteria are considered.

1. Content Design

- Arrange explanatory text material in a structured manner, including definitions, characteristics, structures, and examples of explanatory text.
- Create a concept map to map the flow of the material.
- Determine supporting materials such as relevant images and animations.

2. Interface Design

- Create a sketch or wireframe for the e-module page layout.
- Determine an attractive and user-friendly visual design.
- Ensure the display design is consistent and easy to navigate.

3. Content Development

- Writing explanatory text material in digital format, using clear and easy-to-understand language.
- Integrating supporting media (pictures, animations) into e-modules.

- c. Creating practice questions and evaluations to measure student understanding.
- 4. Technical Development**
 - a. Use software or platform to create e-modules, such as Sigil, iSpring, Flip Hyzine or Articulate.
 - b. Input all supporting materials and media into the selected software.
 - c. Create the navigation and interactivity needed in the e-module.

Table 4 Concept of Product Content of Teaching Materials E Module Explanatory Text Based on Project Based Learning

The Beginning (Opening)	<ol style="list-style-type: none"> 1) The cover page contains the title of E Module, name of the compiler, target material, curriculum logo and tut wuri handayani logo 2) Foreword 3) Introduction contains module identity, learning achievement information and learning objectives 4) Module description 5) Instructions for using the module 6) Motivational words
Middle section (Content)	<ol style="list-style-type: none"> 1) Learning materials 2) Description of learning activities containing project themes and learning objectives 3) Description of materials, containing the definition of explanatory text 4) Purpose of explanatory text 5) Characteristics of explanatory text 6) Structure of explanatory text 7) Language rules of explanatory text 8) Example of explanatory text 9) Example of explanatory text framework 10) Essay exercises 11) Questions 12) Multiple choice exercises 13) Project assignments 14) Explanatory text writing format 15) Self-evaluation
Final part (Closing)	<ol style="list-style-type: none"> 1) Conclusion 2) Bibliography 3) Author's bionarrative

After creating the concept of the product content of the e-module teaching material for explanatory text based on project based learning, an assessment was conducted by several teachers regarding the feasibility of the e-module that had been created. The feasibility test was conducted by three practitioners based on different expertise,

namely material experts, media experts, and teaching practitioners. Based on the results of the assessment of the e-module product for explanatory text based on project based learning by material experts, namely Dr. Mulyanto Widodo, M.Pd., a percentage of 92.5 was obtained, categorized as very good and very feasible.

Table 5 Assessment of Feasibility Test by Material Experts

No	Indicator	Assessment Score				Information
		1	2	3	4	
Material feasibility						
1.	Suitability of material with CP				√	
2.	Suitability of material with learning objectives				√	
3.	Material in learning e-modules is easy to understand			√		

4.	Suitability of learning activities in learning e-modules with students' learning needs				√	
5.	Truth of the substance of learning materials in e-modules				√	
6.	The suitability of the image illustrations (examples of images) in the e-module with the learning material			√		
7.	The material in the learning e-module is useful				√	
8.	to increase knowledge insight			√		
9.	The suitability of the learning teaching materials in the e-module with the learning material				√	
10.	The suitability of the tasks with the material in each learning activity in the e-module				√	
Aspects of Language Feasibility						
11.	The language used is easy to understand				√	
12.	The sentences are in accordance with the correct Indonesian language rules			√		
13.	The use of language does not give rise to multiple interpretations				√	
14.	All information in the e-module is clearly readable				√	
15.	Use of communicative language				√	
Presentation Feasibility Aspect						
16.	The sequence of explanation of the material in the learning materials presented			√		
17.	The content of the e-module is interesting and can motivate students to study harder				√	
18.	Completeness of information in the e-module (summary of material, worksheets, practice questions)				√	
19.	Presentation of practice questions and assignments motivates students to improve their learning			√		
20.	Completeness of information in the e-module (summary of material, worksheets, practice questions)				√	
				18	56	
Total Score Obtained				74		
Total score obtained divided by maximum score				74/80		92,5
Comments and Suggestions						
1. Fix some spelling in the instructions section						
2. Fix sentences that are not yet effective						
3. Add a barcode on the front of the cover page						

Based on the results of the evaluation of the product e-module explanatory text based on project based learning by media experts, namely Dr. Rangga Firdaus, M.IKom., a percentage of 97.22% was obtained with a very feasible category.

Table 6 Feasibility Test Assessment by Media Experts

No	Indicator	Assessment Score				Information
		1	2	3	4	
Module Size						
1.	Module size conformity with ISO standards, A4 size (210 x 297 mm), A5 (148 x 210 mm), and B5 (176 x 250 mm) with a tolerance difference of 0-11 mm				√	
2.	Compliance of size with module content material				√	
Cover						
3.	The appearance of the layout elements on the front cover is appropriate or harmonious, so that it has a good rhythmic impression			√		
4.	The composition of the layout elements (title, author, illustration, logo, etc.) is proportional to the layout of the contents			√		
5.	The color of the layout elements is harmonious and clarifies the function				√	

6	The font size of the module title is more dominant and proportional compared to the author's name and logo				√	
7	The color of the module title contrasts with the background color				√	
8	Does not use too many font combinations.				√	
9	The module cover illustration describes the contents/teaching materials and reveals the character of the object.				√	
Module Content Design						
10	Placement of layout elements is consistent based on writing patterns				√	
11	Writing between paragraphs is clear				√	
12	Margins are proportional to the size of the module				√	
13	The distance between text and illustrations is appropriate.				√	
14	Title of learning activities, subtitles of learning activities, and page numbers/folios.				√	
15	Illustrations and captions.			√		
16	Placement of decorations/illustrations as a background does not interfere with the title, text, page numbers.				√	
17	Placement of titles, subtitles, illustrations, and captions does not interfere with understanding.			√		
18	Do not use too many fonts.				√	
19	The use of font variations (bold, italic, all capital, small capital) is not excessive.			√		
20	Normal text layout width			√		
21	Normal text layout spacing.			√		
22	Normal letter spacing.				√	
23	Clear, consistent, and proportional title hierarchy.				√	
24	Hyphenation.				√	
25	Content illustrations are able to reveal the meaning of the object.				√	
26	Accurate and proportional forms according to reality.				√	
27	Creative and dynamic.				√	
				9	96	
Total Score Obtained				105		
Total score obtained divided by maximum score				105/108	97,22	
Comments and Suggestions						
1. Improve the selection of background and text colors to make them contrast						
2. Don't use too many variations of fonts						

Validation of the product by practitioners was carried out by Indah Kurniyati, SPd. as an Indonesian language teacher at SMK N I Pagelaran Utara. The results of the practitioner's feasibility assessment of the e-module explanatory text product based on project based learning obtained a score of 76 out of a maximum score of 80. It can be

concluded that the e-module explanatory text based on project based learning is in the very good category and is very feasible to use in the learning process. Based on the results of the assessment by practitioners/Indonesian language teachers, a percentage of 96% was categorized as very feasible.

Table 6 Assessment of Eligibility Test by Teaching Practitioners

Table 6 Assessment of Eligibility Test by Teaching Practitioners						
No	Indicator	Indeks Skor				Information
		1	2	3	4	
Material Aspects						
1	Compliance of e-module with CP				√	
2	Compliance of e-module material with learning objectives				√	
3	Correctness of e-module material concept				√	
4	Compliance of assignments with material in e-module				√	
5	Material in e-module is easy to understand				√	
6	Availability of examples (pictures, text) included according to the material for each learning activity			√		

7	Availability of practice questions with material for each learning activity				√	
8	Systematic material sequence				√	
Linguistic and Appearance Aspects						
9	The language used is clear and easy to understand			√		
10	Information on the user guide, learning objectives, and learning steps in the e-module is clear and easy to follow				√	
11	The text size is appropriate and clearly legible			√		
12	The selection of color composition in the e-module is attractive				√	
13	The placement of the layout and components of the e-module is correct				√	
Benefit Aspect						
14	E-modules are easy to access independently				√	
15	E-learning modules are easy to use/operate				√	
16	E-modules help teachers in delivering lessons				√	
17	Using e-modules encourages students to be more challenged to work on the exercises and assignments in the e-modules			√		
18	The use of e-modules motivates students to study harder				√	
19	The use of e-modules helps students to study independently without being limited by time and place				√	
20	E-modules add variety to learning materials for students				√	
Total Score				12	64	
Total Score Obtained		74				
Total score obtained divided by maximum score		74/80			95	
Comments and Suggestions						
1. The content of the material is appropriate; the presentation of the e-module is in accordance with the conditions of the students.						
2. The e-module is very suitable for use in the learning process.						
3. Should create e-modules for other materials.						

Extensive Product Trials

After the product is developed and gets an assessment from material experts, media experts, and practitioners and gets suggestions for improvement, the next stage is a product trial conducted at SMK N I Pagelaran Utara Pringsewu.

The feasibility of the product assessed by Indonesian language educators at SMK N I Pagelaran Utara in a large-scale trial got a score of 77 out of a maximum score of 80 with a percentage of 96.25 included in the very feasible category and the e-module of explanatory text based on project based learning can be used in the learning process for grade XI SMK students.

Test Product Effectiveness

The effectiveness of the project-based learning-based explanatory text e-module is known from the results of the effectiveness test by students. The test was carried out by conducting a pretest-posttest on XI I APHP and XI 2 APHP SMK N I Pagelaran Utara on February 17, 2025. Learning was carried out by adjusting the time allocation for learning explanatory texts with existing learning outcomes (CP) and Learning Objectives. The calculation of the feasibility of product effectiveness uses the N-gain formula. The following describes a comparison of the pretest and posttest results from XI I APHP and XI 2 APHP SMK N I Pagelaran Utara Pringsewu.

Table 7 Comparison of Pretest and Posttest Results

No	Class	Average Results			Category
		Pretest	Posttest	N-Gain	
1	XI I APHP	69.63	87.78	0.61	Currently
2	XI 2 APHP	67.85	83.20	0.59	Currently

Based on the table above, it can be seen that the average value of each class has a significant change. The pretest results are very different from the posttest results. The average pretest value of class XI I APHP is 69.63 and the average posttest value is 87.78, while the average N-gain value is 0.61 in the moderate category. The average pretest value of class XI 2 APHP is 67.85 and the average posttest value is 83.20, while the average N-gain value is 0.59 in the moderate category. Overall, it can be concluded that the project-based learning-based explanatory text e-

module for learning explanatory text material is effective for use in learning because it can improve students' abilities in understanding and analyzing the elements of structure and language of explanatory texts and has been proven to be effective in improving students' ability to write explanatory texts.

The results of the product effectiveness test in class XI I APHP SMK N I Pagelaran Utara involving 36 students during face-to-face learning. The test scores obtained are as follows.

Table 8 Results of Effectiveness Test in Class XI I APHP

No	Name	Score Pretest	Score Posttest	N-gain
1	Aji Niswaludin	76	96	0.83
2	Alda Apriasih	72	88	0.57
3	At Kobri	72	88	0.57
4	Azahra Nurfadila	68	86	0.56
5	Junita Lestari	60	84	0.60
6	M. Munir UI Ikhwan	72	87	0.54
7	M. Tino Algifahri	68	86	0.56
8	Nadia Rahma Anisa	72	88	0.57
9	Okta Ervita	72	87	0.54
10	Putri	60	85	0.63
11	Ratna Sari	72	89	0.61
12	Reva Fatimah	72	90	0.64
13	Ria Septiana	72	86	0.50
14	Risna	64	84	0.56
15	Silvia	72	88	0.57
16	Tri Aryani	68	87	0.59
17	Vina Febriani	68	88	0.63
18	Wahyu Fatur Rahman	76	96	0.83
	Rata-Rata	69,63	87.78	
	N-Gain			0,61

Table 9 Results of Effectiveness Test in Class XI 2 APHP

No	Name	Score Pretest	Score Posttest	N-gain
1	Abdul Malik	64	84	0.56
2	Albin Mishky Anandya	60	80	0.50
3	Arif Setiawan	64	86	0.61
4	Dani Kurniawan	80	95	0.75
5	Dendi Afrido	76	87	0.46
6	Dika Andrian	72	85	0.46
7	Doni Arta Kusuma	60	85	0.63
8	Edi Riyanto	64	85	0.58
9	Eka Dwi Cahya	68	87	0.59
10	Firhan Setiawan	72	89	0.61
11	M. Khusairi	72	89	0.61
12	Novaldo Rio Andika	72	90	0.64
13	Rafi Ram Adani	72	86	0.50
14	Ramadoni	64	84	0.56
15	Reyno Abdi Alfarizi	72	88	0.57
16	Robiansyah	68	87	0.59

17	Sahrul	68	88	0.63
18	Samhudi	76	96	0.83
	Rata-Rata	69.11	87.28	
	N-Gain			0.59

The effectiveness test was conducted by giving students a test related to the subject matter used to compile the effectiveness instrument of the e-module explanatory text product based on project based learning to achieve learning objectives and adjusted to the flow of learning objectives that have been formulated in the activity of writing explanatory texts. The purpose of this stage is to determine the effectiveness of the product after being used in learning whether it meets the established criteria. In this test, the researcher was assisted by Indonesian language educators from class XI I APHP and class XI 2 APHP. Before the trial, the researcher looked at the student data and scores on the explanatory text material before using the product which was then used as the pretest score. The next step is the implementation of explanatory text learning using the e-module explanatory text based on project based learning. The scores obtained after learning using the e-module explanatory text are then used as the posttest score. The average gain index obtained from class XI I APHP was 0.61 and class XI 2 APHP was 0.59, included in the moderate category. Thus, the e-module explanatory text based on project based learning is effective for use in learning in class XI SMK.

CONCLUSION

1. The process of developing explanatory text teaching materials in the form of project-based learning-based explanatory text e-modules begins with setting objectives and materials and analyzing potentials and problems in explanatory text learning (preliminary study), product design, product development, product validation, product revision, feasibility testing, and product refinement from field trials that are ready to be tested for their effectiveness. The resulting product is in the form of explanatory text teaching materials in the form of project-based
2. The teaching material of explanatory text in the form of e-module based on project based learning for vocational high school students in grade XI meets the criteria of very feasible. These criteria are based on the results of the assessment of material experts who obtained a percentage of 92.5% with a very feasible category, the assessment of media experts who obtained a percentage of 97% with a very feasible category, and the assessment of practitioners obtained a percentage of 97.5% with a very feasible category. The feasibility trial was carried out with a large-scale trial of Indonesian language educators who obtained a percentage of 95 with a very feasible category.
3. The effectiveness test of the product in the form of an e-module of explanatory text material based on project based learning for grade XI students of SMKN Pagelaran Utara through pretest and posttest showed an average value of N-gain for grade XI 1 APHP of 0.61, including the moderate category, and an average value of N-Gain for grade XI 2 APHP of 0.59, including the moderate category. Therefore, the e-module product based on project based learning of explanatory text material for grade XI

SMK students is declared effective for use in learning.

Declaration by Authors

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