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Validity of Learning Module Development Designing Scientific Work Proposals Based on Project Based Learning

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Abstract – *The Indonesian language learning paradigm in the 2013 curriculum is oriented towards text-based learning where students are required to be able to demonstrate the structure of content and language, then be skilled in presenting a written or spoken text. Student's uneven abilities in design scientific work proposals, as well as learning resources that only come from textbooks are the main problems in this research. The solution to overcome these problem is to develop a learning module to design scientific work proposals based on Project Based Learning which is able to guide students to learn independently in designing proposal in stages. The purpose of this research is to produce a valid Project Based Learning- based learning module. The aim of this research is to produce a learning module for designing scientific work proposals based on Project Based learning. The validation process is part of development wich is a cotinuation of the define and design. The developed module was velidated by six validators, each aspect is validated by two validators. The research rsults ahow that (1) the content feasibility persentage is 94% with very valid criteria, (2) the language feasibility persentage is 91% with very valid criteria, (3) the graphic feasibility persentage is 87% with very valid criteria. Thus, the learning module developed is valid and can be tested on teachers and students.*
Keywords: *validity, module, Project Based Learning*

1. INTRODUCTION

The curriculum is one of the most important components in the education system. The current implementation of the 2013 curriculum in the education system in Indonesia is a form of renewal of the previous curriculum, namely KTSP. The fundamental difference between the 2013 curriculum can be seen from the implementation in all subjects. In the KTSP curriculum, the material is structured to provide knowledge to students, whereas in the 2013 curriculum the material is structured in a balanced manner, namely covering attitude, knowledge and skill competencies (Hakim, 2017: 285). Indonesian is one of the subjects that has undergone changes in the 2013 curriculum. The Indonesian language learning paradigm in the 2013 curriculum is oriented towards text-based learning, then demonstrating the structure of content and language, then being skilled in presenting a written or spoken text. One of the materials in learning Indonesian that guides students to be skilled in presenting written texts is designing scientific work proposals which is taught in class XI semester in KD 4.13 Designing scientific work proposals by paying attention to the information, objectives and essence of the scientific work required.

The word proposal in Indonesian means proposal, planning, proposal, plan. The meaning of a proposal then extends to determining a series of actions or behaviors to achieve certain results according to the desired goals. A proposal is a work plan prepared systematically for a formal activity (Sujito, 2017: 45). Furthermore, Agam (2008: 25) stated that proposals have various forms depending on their type and function. However, although different, a proposal is a form of elaboration of an offer. Based on the results of an initial interview with one of the class XI Indonesian language teachers at Sungai Geringging High School, information was obtained regarding several problems experienced by students in designing scientific work proposals. First, students' ability to design scientific work proposals is not evenly distributed. Students are able to understand the material but when asked to prepare a scientific work proposal they still have difficulty, especially in arranging words and arranging ideas/thoughts. Second, students' learning resources only come from package books published by the Ministry of Education and Culture in the revised edition of 2017. Sumariani (2020: 100) stated that the teaching materials currently circulating have several shortcomings, namely that the majority of students find it difficult to understand the teaching materials provided without assistance. from the Internet. Apart from that, the attractiveness of the teaching materials is lacking and the use of language in the previous teaching materials was quite high so that students found it difficult to understand the message in the material presented. Third, there are no teaching materials that specifically focus on designing scientific work proposals. There are no special teaching materials that can guide skilled students in designing scientific work proposals.

Magdalena (2020: 172) defines teaching materials as materials or learning materials that are prepared completely and systematically based on the learning principles used by teachers and students in the learning process. Teaching materials are systematic, meaning they are arranged sequentially to make it easier for students to learn. Ratumanan (2019: 291) differentiates teaching materials from aspects of learning approaches as follows. First, teaching materials for independent learning, for example modules, audio presentation materials, films, audio programs and slides. Second, teaching materials for face-to-face, for

example handouts or student worksheets (LKPD). Third, teaching materials for combined learning can take the form of textbooks, modules, compilation materials, presentation materials in the form of PowerPoint or Adobe Flash, and so on.

One type of teaching material that can be developed to help teachers and students in the learning process is a module. A module is a teaching material that is arranged systematically in language that is easily understood by students according to their level of knowledge and age, so that they can learn independently (independently) with minimal help or guidance from the teacher (Prastowo, 2011: 106). Furthermore, Sirate (2017: 320) states that modules are one of the teaching materials that students can use independently. A good module must be structured systematically, interestingly and clearly. In general, the module has several advantages when used in the learning process, including: 1) training students to learn independently; 2) learning is more interesting because it can be done outside the classroom and outside class hours; 3) reduce dependence on textbooks; 4) broaden your horizons because it is prepared using various references (Hamid, 2013: 130).

Developing a module can use a model. One learning model that can be used is the Project Based Learning model. This model is used because it is relevant to the final objective of KD 4.13, namely to direct students to design scientific work proposals. Project Based Learning is giving assignments to students that must be completed within a certain period or time, starting from planning, data collection, organizing, processing and presenting products (Sulaeman, 2020: 20). Project-based learning is more student-centered, where in managing learning in the classroom a project activity will be involved. Project work contains complex tasks based on very challenging questions and problems and requires students to design, solve problems, make decisions, carry out investigative activities, and provide opportunities for students to learn independently (Gilis, 2019: 288). In its application, at the planning stage students are directed to determine the theme of the proposal to be designed, the data collection stage is carried out to find references as material for writing proposals, the organizing stage is carried out to prepare a project implementation schedule, the processing stage is used by students to prepare scientific work proposals, then the final stage is presenting real and valuable products, namely producing written work in the form of scientific work proposals.

Previous research was conducted by Nopriana (2019) with the title Developing a Short Story Writing Module Based on Project Based Learning (PjBL) for MA Arrayal Students. The results show that the module developed can improve student learning outcomes in writing short stories. This is proven by the very valid level of module validity with a percentage of 95.83%. Apart from that, the same research was also carried out by Suyanto (2019) with the title Project-Based Module Development in Writing Learning for Class XI Odd Semester High School Students. The results of the module feasibility test by material experts, media experts and practitioners received an average score of 89% in the feasible category and can be used as teaching material for students. From several previous studies, it can be seen that the Project Based Learning model, when combined with modules, can improve student learning outcomes, especially in writing skills.

The Project Based Learning model was chosen to make it easier and direct students to hone aspects of their skills in designing scientific work proposals in a gradual and structured

manner according to the Project Based Learning steps. Through this learning module, students are expected to actively investigate (learn by presenting real-world problems) and be able to work in teams or independently, detailing the process of completing a scientific work proposal project. Before developing a module, it is first necessary to test its feasibility or validity to find out whether the module is suitable or valid to be used in the learning process. Therefore, the aim of this research is to determine the validity of the learning module for designing scientific work based on Project Based Learning for class XI students. The benefit of this research is that it produces learning modules that are valid and can be tested on teachers and students in the learning process.

2. METHODOLOGY

This research is included in the type of development research with the 4-D model (four-D models) developed by Thiagarajan (1974). The development stages carried out include: definition, planning, development and dissemination. In this research, the stages carried out were development in the form of validation tests. According to Daryanto (2013: 22) validation is a process to test the conformity of the module with the competency that is the learning target. If the contents of the module are appropriate, meaning that it is effective for learning the competency that is the learning target, then the module is declared valid. Validation can be done by asking for help from experts who master the competencies being studied. In this research, the module validity test was carried out by six expert validators according to their respective fields of study. The content/material aspects were validated by two Indonesian language and literature education lecturers. The language aspects were validated by two language lecturers. The graphic feasibility aspect was validated by two visual communication design lecturers. Validation test data was taken using the module validity questionnaire instrument.

The module validation analysis technique for designing scientific work proposals is carried out in the following stages.
a. Scoring is done using a Likert scale (Riduwan, 2013: 13)

Table 1. *Likert Scale Assesment*

Statement	Symbol	Wieght
Strongly Agree	SS	5
Agree	S	4
Neutral	N	3
Don't Agree	TS	2
Strongly Disagree	STS	1

a. Add up the score s of each validator for all indicators.

b. The validity value is given using the following formula:

level of validity = $\dfrac{\text{score obtained} \times 100\%}{\text{maximum score}}$

c. The values obtained are converted to the following module validity criteria so that validation values are obtained by each validator.

Table 2. Module Validity Criteria

No	Achievement Level	Category
1	81-100	Very valid
2	61-80	Valid
3	41-60	Quite valid
4	21-40	Less valid
5	0-20	Invalid

3. RESULTS

The learning module for designing scientific work proposals based on Project Based Learning has previously gone through the definition stage in the form of curriculum analysis, analysis of student characteristics, material analysis, and formulating objectives (Winarni, 2018: 258). The design stage is carried out by creating an initial product (prototype) or product design in accordance with the results of the curriculum and material analysis that has been carried out at the definition stage. Before the product design continues to the next stage, the module design needs to be validated. The following are the results of validation of content/material aspects, linguistic aspects, graphic aspects by the validator.

a. Validity Test Data for Learning Module Content/Material Aspects

Validation of content/material aspects was carried out by two validators, namely Dr. Tressyalina, M.Pd. as the first validator (V1) and Mimi Sri Irfadila, M.Pd. as the second validator (V2). The validated aspects include the appropriateness aspect of the content, the appropriateness aspect of the presentation, and the Project Based Learning aspect.

Table 3. Result of Expert Validation on Content/ Material Aspects

Rated aspect	Score obtained		Average validation percentage (%)	Category
	V1	V2		
Aspects of content suitability	96	92	94	Very Valid
Aspects of suitability of presentation	24	24	94	Very Valid
Aspects of *Project Based Learning*	47	47	94	Very Valid
Amount			**94%**	Very Valid

The feasibility aspect of the content of the Project Based Learning-based learning module developed is generally classified as valid with a validity level of 94%. The results of the validator assessment show that the material contained in the learning module developed is in accordance with the Core Competencies and basic Competencies and is in accordance with the 2013 curriculum. The material presented in the learning module includes material, examples, exercises and a bibliography in line with current scientific developments. The learning resources referred to in the module are the latest learning sources and contain enrichment material that supports or enriches the main material. This is in line with the opinion of Muslich (2014: 3) that in assessing the suitability aspect of content there are three indicators that must be considered, namely the suitability of the material description with Competency Standards (SK) and basic Competencies (KD) contained in the subject concerned, the accuracy of the material , and learning support materials.

The feasibility aspect of presenting learning modules for designing scientific work proposals based on Project Based Learning which is developed is generally categorized as very valid with a validity level of 94%. Ministry of National Education (2008: 26) describes the components of evaluating teaching materials in the presentation aspect including the order of presentation, attractiveness and completeness of information. The results of the validator assessment show that the learning module developed contains all module components starting from the title, study instructions, KI, KD, supporting information, exercises, tasks/work steps, and assessment. The structure and arrangement of the modules are sequential and systematic, the layout is orderly, and the modules have a simple and attractive appearance design.

The Project Based Learning aspect developed is categorized as very valid with a validity scale of 94%. The results of the validator assessment show that the learning model based on

the module involves students in learning, the description of the problems presented in the module is easy to solve, and gives students new experiences in learning to design scientific work proposals. Through this model, students are directed to relate the learning process to the real world. In general, the validator stated that the learning modules developed can be used for learning based on Project Based Learning

b. Validity Test Data for Linguistic Aspect Learning Modules

Validation of linguistic aspects was carried out by two validators, namely Dr. Anggia Pratiwi, M.Pd. as the first validator (V1) and Dr. Zona Rida Rahayu, M.Pd. as the second validator (V2). The validated aspects include aspects of suitability to student development, communicative aspects, and accuracy of EYD.

Tabla 4. Linguistics Aspect Expert Validation Results

Rated aspect	Score obtained		Average validation percentage (%)	Category
	V1	V2		
Suitability to student development	10	9	95	Very Valid
Communicative	25	21	92	Very Valid
Spelling suitability	13	13	87	Very Valid
Amount			**91%**	Very Valid

In general, the validator's assessment on the linguistic aspect is classified as very valid with a percentage of 91%. Assessment of language appropriateness aspects in learning modules is based on suitability to student development, communicativeness, EYD suitability. This means that overall the module designed meets the language standards for a learning product. The language used in the learning module is simple and appropriate to students' intellectual development. Apart from that, the language used is also communicative for students. This is in line with Daryanto's (2013: 48) opinion that the language style used in writing the module is conversational language, which is as if you are dealing with the reader and will create an intimate atmosphere as if there is two-way communication. Apart from that, the sentence structure used in the presentation of the module is simple sentences and single sentences. In general, the validator said that the learning module developed could be used in learning while still paying attention to the use of Indonesian Spelling. Using appropriate language and effective sentences can make it easier for students to understand learning resources (Nerita, 2018: 53).

c. Validity Test Data for the Graphics Aspect Learning Module

Validation of graphic aspects was carried out by two validators, namely Tedy Wiraseptya, M.DS. as the first validator (V1) and Mourend Devegi, M.Kom. as the second validator (V2). Validated aspects include type and size of letters, layout, layout, images, illustrations, photos and appearance design.

Table 5. Graphical Aspect Expert Validation Result

Rated aspect	Score obtained		Average validation percentage (%)	Category
	V1	V2		
Font type and size	22	25	94	Very Valid
Lay out	8	7	75	Valid
Images, ilustration, photo	13	18	78	Valid
Display desain	10	10	100	VeryValid
Amount			**87%**	**Very Valid**

The graphic feasibility aspect of the learning modules developed is generally categorized as very valid with a validity scale of 87%. Ministry of National Education (2008: 26) explains that the evaluation components in the graphic aspect include the use of fonts and types of letters, layout, illustrations, drawings, photos and display design. This means that the letters used in preparing the module are attractive and easy to read. The color of the module title is in harmony and contrast with the module background. This is in accordance with the opinion of Purnama (2010: 123) that when choosing colors for learning materials you must also pay attention to the desired emotional response, namely active, dynamic, warm feelings because color is the first thing students see (especially background colors). . In addition, placing page numbers in accordance with the layout pattern of placing illustrations as a background does not interfere with the title, text, page numbers and module cover.

4. CONCLUSION

The results of validity research on the development of learning modules for designing scientific work based on Project Based Learning are generally classified as very valid from the content/material aspect, linguistic aspect, graphic aspect. The percentage of content/material aspects is 94% with very valid criteria. The percentage of linguistic aspects is 91% with very valid criteria. The percentage of graphic aspects is 87% with very valid criteria. Based on these results, the learning module developed has been declared valid and can be tested on teachers and students at the practicality and effectiveness stage of the learning module.

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