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The Development of Guided Inquiry-Based Basic Accounting Module

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Abstract *: This research focused on how the development of basic accounting module materials based on guided inquiry that is appropriate for vocational high school based on needs analysis is. The research procedure was 4D development model consisting of Define, Design, Develop, and Disseminate. Population of this research was vocational students with 64 students as the sample through a purposive sampling technique. Technique of data collection used was questionnaire and interview. The data collected was analyzed by using descriptive statistic analysis. The results showed that the developed teaching material of basic accounting module based on guided inquiry was feasible to use. The analysis results showed that: (1) validation from media experts derived an average percentage of 98.13% included in "very good" category; (2) The validation from material expert derived an average percentage of 90.46% included in "very good" category; and (3) The validation from practitioners derived an average score of 96.4% included in "very good" category.*
Keywords *: teaching materials; module; guided inquiry; vocational school*

I. Introduction

One of the competencies that should be owned by teachers in carrying out their duties is developing teaching materials (Sungkono, *et al.*, 2010). The development of teaching materials is important to conduct by the teacher to create more effective and efficient learning as well as to achieve the targeted competencies. The competence in developing teaching material has been ideally mastered by the teacher. In fact, there are still many teachers who have not mastered it properly. Most of teachers depend more on teaching materials from factories or publishers, both in the form of teaching materials in the form of books and student worksheets containing exercise questions. There are various kinds of teaching materials that could be an alternative to use. However, teaching materials in modules are still rarely used by teachers.

Modules are a way of organizing learning material referring to materials presentation order and shows students the relationship between concepts, facts, procedures, and principles contained in the learning material. (Prastowo, 2012). Modules play a role to connect students' knowledge with objects learned through the activities contained in the module, as well as provide opportunities for students to master one unit of subject matter before moving to the next unit. (Prastowo, 2012).

The utilization of modules in learning eases the teachers in teaching and students will be more helped in learning (Depdiknas, 2008: 8). Therefore, the proper modules are needed to support the learning process in schools in which one of them is in Accounting learning. Accounting subject is one of the specializations in vocational high schools which are mostly chosen by the students. Basic Accounting as one of the vocational high school subjects is considered playing an important role in creating qualified students. Based on the observations results in the field, it is shown that most of students get difficulty in learning basic accounting. It could be seen from the following accounting exam scores:

Table 1. Accounting Score of Accounting Examination

Class	Number of Students	Class Average Score	Not Passed Yet	Passed
X Ak1	32	6.87	19	13
X Ak2	32	6.93	22	10
X Ak3	30	6.75	20	10
Total	94	6.85	61	33

Based on the table, students who have not passed Basic Accounting learning are 61 students or represented 64.89% and only 33 students that have passed it. Students have not passed due to the lack of teaching materials owned by students so that they only depend on material from the teacher. Consequently, it is necessary to improve learning outcomes in Basic Accounting subjects at school through the use of modules as teaching materials.

Teaching materials utilization is not enough to support learning without applying particular. Therefore, it needs to be combined with proper learning models. One of models that could be chosen is guided inquiry. Guided inquiry is a learning that focuses on developing scientific ways of thinking. It leads students to learn more independently and develop creativity in problem solving, so students do more activities individually or in groups to overcome problems with the guidance from teachers. (Wenno, 2013; Sumiati & Asra, 2007; Sadeh & Zion, 2009). Guided inquiry learning may lead students to carry out investigations to gain information from experiments/observations aiming to solve or find answers of the problems around by using the logical and critical thinking ability (Joyce & Weil, 2011).

The existence of guided inquiry in the module facilitates the students to learn more independently and develops creativity in problem solving so that students do more activities individually or in groups to solve problems with teacher guidance (Wenno, 2013). The combination of modules and the guided inquiry model will later be named as Basic Accounting module based on guided inquiry. The module development is compiled in accordance with the syntax of guided inquiry that consists of: 1) An introduction to the area of investigation for the students; 2) Finding and searching for problems; 3) Identifying the problems under that is studied; 4) Determining strategies to overcome problems based on the facts found (Joyce & Weil, 2011).

Based on the background, this research focused on how the development of basic accounting module materials based on guided inquiry that is appropriate for vocational high school based on needs analysis is. This study was carried out to analyze the feasibility of the development of basic accounting modules based on guided inquiry.

II. Research Methodology

This research applied research and development procedures based on a 4-D development model that consists of (1) Define, (2) Design, (3) Develop, and (4) Disseminate. Below is an overview of the activities at each stage, namely:

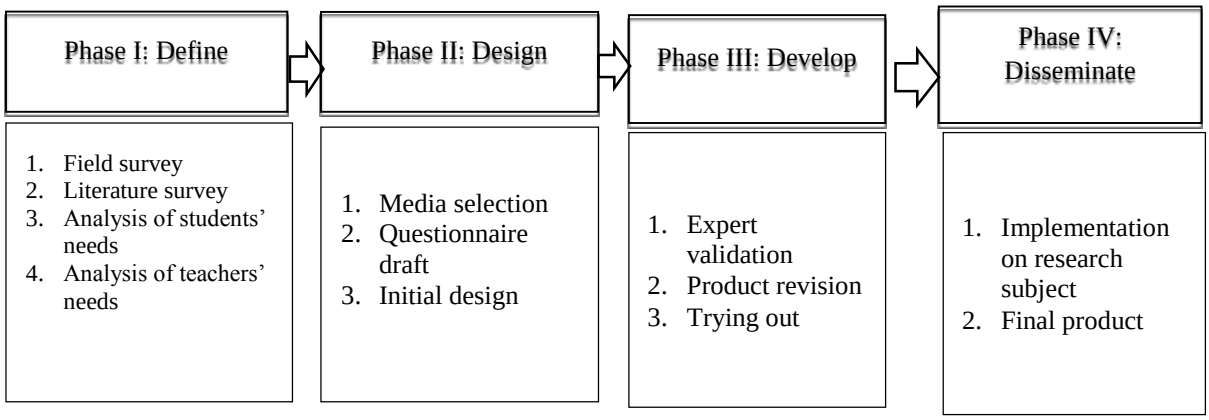

Figure 1. 4-D Development Model

Technique of data collection used was questionnaire and interview. The questionnaire is utilized to assess the feasibility of the product that is conducted by experts consisting of material experts, media experts, and practitioners(Cohen, Manion, & Morrison, 2000; Verma & Mallick, 1999) The questionnaire assessment used Likert scale score from 1 to 5. Hereinafter, the assessment results are recapitulated using the formula, namely:

$$P = \frac{\sum xi}{\sum x} x\ 100\%$$

Where:
P = Assessment Percentage
$\sum xi$= Given score
$\sum x$= Highest score

The percentage of score obtained was then converted into qualitative. Below is the conversion from quantitative to qualitative, namely:

Table 2. Assessment Criteria

Interval	Criteria
81 % – 100 %	Very Good
61 % – 80 %	Good
41 % – 60 %	Fair
21 % – 40 %	Poor
0 % – 20%	Very Poor

(Source: Riduwan (2009: 15))

The population of this research was students of vocational school. The sample was 64 students chosen through purposive sampling. The data collected was analyzed by using descriptive statistic analysis.

II. Discussions

The development done was a developmental research using 4-D development model developed by Thiagarajan & Semmel (1974). This development model consists of four stages that are Define, Design, Develop, and Disseminate. Therefore, the results of this research were systematically presented in accordance with the 4D research model, as follows:

1. *Define*

This is the initial stage of research in the 4-D development model in which the purpose is to define the circumstances that occur in the field and clarify the problems that occur, as well as gain information about the problems encountered in order to derive problem solving. At this stage, the researcher collected data by distributing questionnaires on teacher and students' need. The analysis of student needs was carried our by distributing questionnaires to 94 students of class X. The survey results from the questionnaire can be seen in Figure 4.1 as follows:

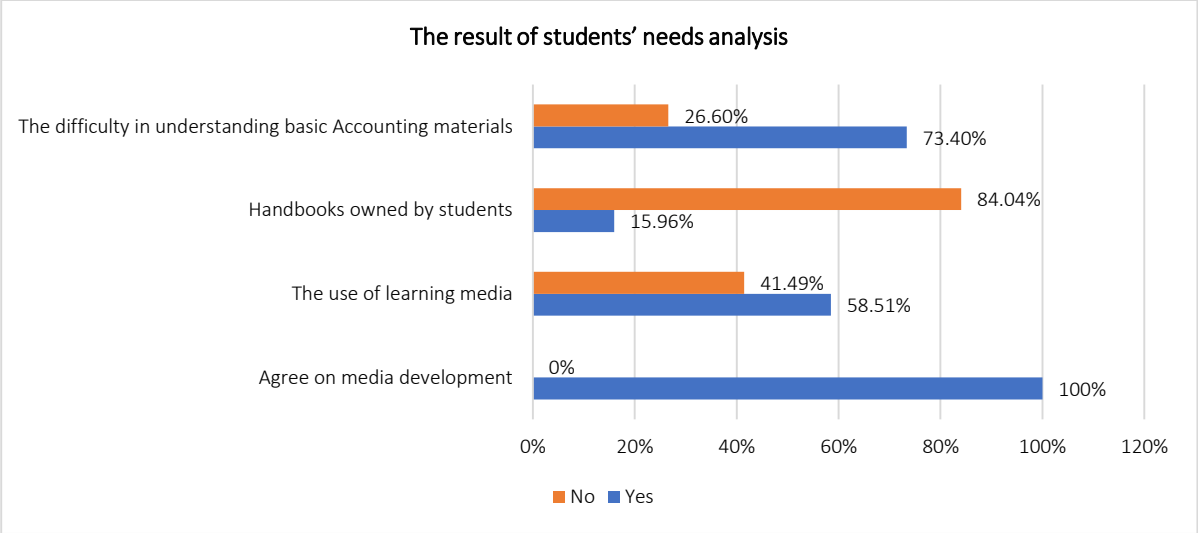

Figure 2. The result of students' needs analysis
(Source: Data Processing in 2019)

Based on the results of the questionnaire, it is shown that most of students got difficulty in understanding basic accounting materials that was 73.4% of 94 students. This is aggravated by the fact that only a few students have a handbook as a learning source of only 15.96% or 15 students, while the other students rely on other learning resources, such as the Internet. Additionally, during the learning process the use of learning media was still very less which caused students to get bored easily. This was revealed by 41.49% of students.

The questionnaire results of the teachers' need analysis revealed that (1) the teacher had a handbook as a source of learning, but the material in the book had not completely explained the material. It was still in broad outline; (2) Sometimes, teachers used learning media, but it was only limited to the use of PPt; (3) the teachers argued that they have restricted time to develop learning module so that they only relied on modules produced by the factory.

2. *Design*

Module was developed by referring to the guided inquiry syntax and was arranged systematically as needed. The parts in the module consist of covers, preface, table of contents, concept maps, material, summary, exercises, glossary, bibliography, and author profile. The result of module development based on guided inquiry could be seen in the following figure.

Figure 3. Accounting Module based on Guided Inquiry

3. *Develop*

Teaching material that was developed before the field trial was then assessed by several experts consisting of media experts, material experts, and practitioners. The experts carried out the assessments in accordance with the established assessment aspects. The assessment was done by using questionnaire. The result of assessment done by the experts could be seen on the following table.

Table 3. The results of Expert Validation on Module based on Guided Inquiry

Expert Validation	Assessment Aspect	∑ni	∑N	%	Score	Criteria
Media Expert	Module size	10	10	100	100%	Very good
	Module cover design	86	90	100	95.56%	Very good
	Module contents design	168	170	100	98.82%	Very good
Material Expert	Content Feasibility	83	90	100	92.22%	Very good
	Presentation component	97	100	100	97%	Very good
	Language	55	65	100	84.62%	Very good
	Guided inquiry approach	22	25	100	88%	Very good
Practitioners	Content Feasibility	47	50	100	94%	Very good
	Presentation component	49	50	100	98%	Very good
	Language	49	50	100	98%	Very good
	Guided inquiry approach	24	25	100	96%	Very good
	Graphics feasibility	24	25	100	96%	Very good

4. *Disseminate*

At this phase, the dissemination process was accomplished by conducting an effectiveness test in Accounting Class X of SMK Negeri 1 Kalianda. The learning process was conducted by using the developed learning material which is basic accounting methods based on guided inquiry.

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The Feasibility of the Basic Accounting Module Based on Guided Inquiry was measured from the assessment done through the experts' validation and practitioner validation processes. The assessment was a benchmark whether the Basic Accounting Module Based on Guided Inquiry can be used in basic accounting learning. Expert validation consisted of media experts namely Prof. Dr. Nunuk Suryani, M.Pd (as a professor in the field of educational technology at the Faculty of Teacher Training and Education in Sebelas Maret University and material expert was Dini Octoria, S.Pd., M.Pd (as a Lecturer in Accounting Education at the Faculty of Teacher Training and Education in Sebelas Maret University), while the validation of practitioners was the Basic accounting teacher at SMK Negeri 1 Kalianda.

Validation carried out by media experts referred to the feasibility aspect of graphics consisting of assessing module size, module design, and module content design. Whereas material expert validation involved aspects of content, presentation, linguistic feasibilities, and guided inquiry approach. The analysis results of media experts' validation score could be seen in the following table:

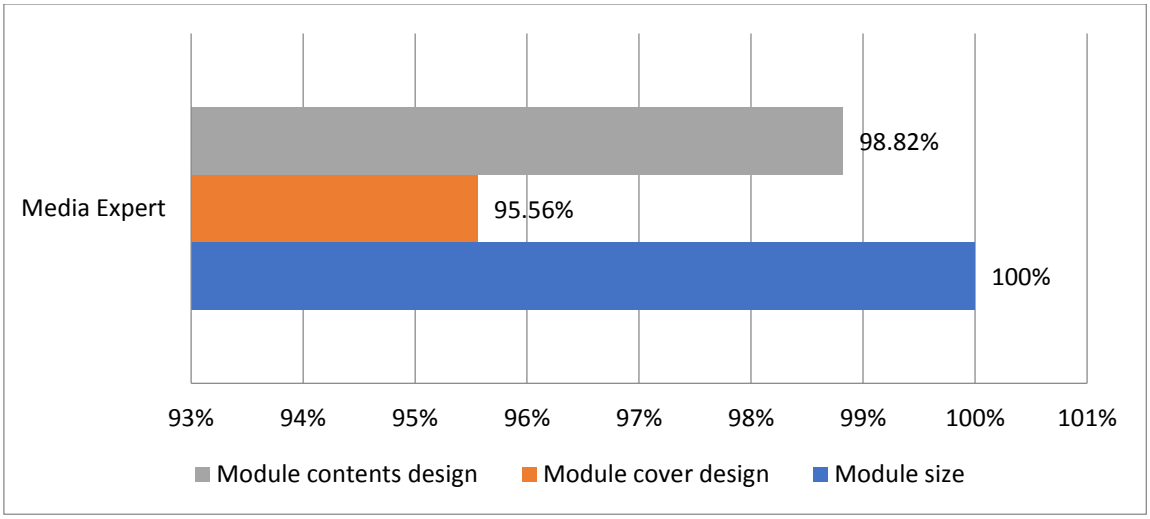

Table 4. The Percentage of Media Expert Validation
(Source: Data Processing in 2019)

Based on the analysis results of media expert validation, an average score was 98.13% with feasibility details on the design aspects of module contents obtained a percentage of 98.82%, the design aspect of the module obtained a percentage of 95.56%, and the module size aspect obtained a percentage of 100%. Media validator considered that the module size aspect has complied with the established ISO standards. The display of the module layout had been arranged in harmony so that it presented a good and clear display in understanding the module. This could be seen from the selection of letters, models, sizes, text layout, colors, and the use of proper language so that it is readable by the user Additionally, the media validator stated that the module content design had been arranged systematically so as it will facilitate students in learning through the Guided Inquiry-based Basic Accounting Module.

Furthermore, material expert's validation involved the aspects of content, presentation component, linguistic feasibilities, and guided inquiry approach. The analysis results of material expert's validation score could be seen in the following table:

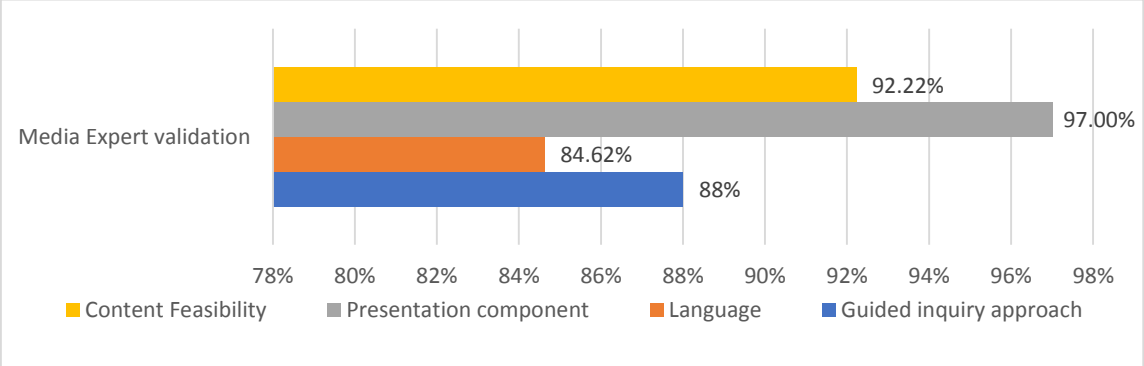

Table 5. The Percentage of Material Expert Validation
(Source: Data Processing in 2019)

Based on the results of the analysis of material expert's validation, an average score was 90.46% with the details on the feasibility of the content aspect obtained a percentage of 92.22%, the presentation aspect gained a percentage of 97%, the linguistic aspect derived a percentage of 84.62%, while the aspect of guided inquiry approach had a percentage of 88%. The material expert validator considered that the module content had been complete because it involved spiritual, social dimensions and knowledge attitudes. It could be seen from the material listed that was able to develop these three aspects, not only referred to knowledge dimension. The material presented has summarized everything that students need to learn coherently and clearly facilitates the students to understand the material independently. Overall the module had been assessed as proper module for use in basic accounting learning.

Besides validation done by the experts, the developed product was also validated by practitioners. Practitioner validation involved content, presentation component, linguistic, guided inquiry approach, and graphic feasibilities aspects. The analysis results of practitioner's validation score could be seen in the following table:

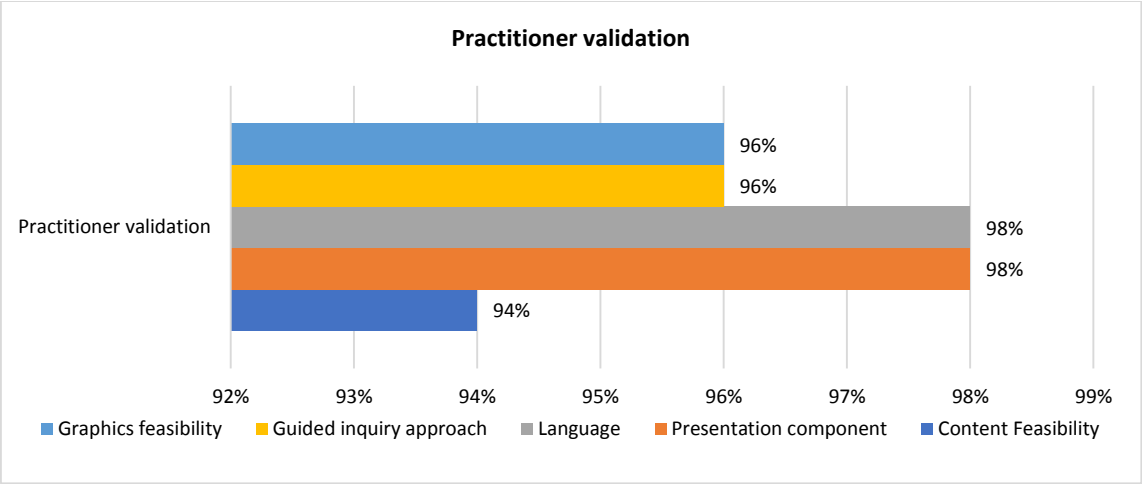

Table 6. The Percentage of Practitioner Validation
(Source: Data Processing in 2019)

Based on the analysis results of practitioners validation, generally it was shown a very good value with the percentage of 96.4% which involved the content feasibility aspect which was considered very good by deriving score of 94%, the percentage module presentation

component was 98% that is included in very good criteria, linguistic aspects with very good grades obtained a percentage of 98%, aspects of the guided inquiry approach also obtained a score of 96% that is included in very good, graphics feasibility aspects with a very good score obtained a percentage of 96%. The practitioner considered that the module had completely presented the material in a single unit such as a glossary, material, evaluation and assessment. Additionally, module was systematically arranged so that students can learn gradually in accordance with what material must be learned first. The module has an attractive display, especially with pictures and illustrations that facilitate students in understanding the material.

The whole analysis results of validation score obtained a score of 94.99%. In the other words, it could be concluded that the basic Accounting Module based on guided inquiry was considered very feasible to use in learning with an average score of media expert's validation was 98.13%, the average score of material expert's validation was 90, 46%, and the average score of practitioner's validation was 96.4%. Therefore,overall the module had been assessed as a proper module for use in basic accounting learning in Accounting class X because it facilitates learning and increase understanding in greater depth. This is in line with the research conducted by Suwono & Lukiati (2013) that pointed out that the use of developed module teaching materials based on guided inquiry could train the students to develop their own concepts In addition, Rizki (2013) revealed that the development of guided inquiry-based modules had met the requirements of very good quality from media experts, material experts, and linguists so that the use of modules could make student learning process be more directed, improve concepts understanding, creativity, and information analysis skills. Since students are required to independently find the concept of material being studied.

III. Conclusion

The Development of Basic Accounting Module Based on Guided Inquiry was conducted in accordance with the 4-D development model by referring to the results of needs analysis of students and teachers. The Feasibility of the Basic Accounting Module Based on Guided Inquiry reviewed from the results of expert and practitioner's validations was very feasible results for use as learning media. Expert validation consisting of media and material experts obtained an average score of 98.13% and 90.46% respectively. Practitioner validation obtained an average score of 96.4%. The overall assessment summary reveals the average score of 94.99%. Therefore, it can be concluded that the basic Accounting Module based on guided inquiry is very feasible to use in learning.

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