

## **Developing Learning Material of Business Principles Using Scientific Approach to Improve Students' Achievement**

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**Abstract:** *This study aims to develop learning material for Business Principles using scientific approach for twelfth grade of Marketing in the second semester to improve students' outcomes. This study which used qualitative approach and supported with quantitative data was research and development (R&D). The model was adapted by Borg and Gall which covered: (1) Potentials and problems, (2) Data collecting, (3) Designing the product, (4) Design validation, (5) Design Revision, (6) Product Try-out, (7) Product revision, (8) Field Testing, and (9) Product Revision. This product was validated by one media expert and material expert, and was tried out in small group of 15 students and in large group of 32 students. The data were gathered using interview guide, questionnaire, and students' achievement. The results showed that there was difference in the average of students' achievement between experimental class and control class. The average of the post-test was experimental class with 70.4 and control class 50.8.*

**Keywords:** *Business Principles, Learning Material, Scientific Approach*

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### **I. Introduction**

Vocational High School (SMK) is a kind of institution in Indonesia whose purpose is to improve intelligence, knowledge, personality, character, and also skills which are needed to live independently and continue further education in accordance with the vocational. Ministry of Education implemented Curriculum 2013 which aims to produce productive, creative, innovative, and behave human resources [1]. Curriculum 2013 covers 3 competences which are affective, knowledge, and skills [2]. These three competences are linked to each other. Moreover, the curriculum also uses scientific approach in the learning process.

[3] explained, "Scientific approach is a learning approach designed in order to engage students' activeness to construct concept, law, and principles through some stages: observing, questioning, defining problems, hypothesizing, collecting data from various techniques, analyzing data, drawing conclusion and communicating concept, law and principles which have been "discovered." Moreover, according to [4] scientific approach in learning is included observing, questioning, reasoning, trying, and building network. From the explanation, scientific approach aims to give understanding for students in knowing, and comprehending any materials using scientific approach. Information can be from wherever, whenever, and not rely only from teacher. Therefore, learning condition should also create good atmosphere to motivate students to look for sources through observation, not only being told by teacher.

[1] said, "One of the key factor of learning using scientific approach is the adequate learning materials." Teacher has an important role in the learning process. A teacher has roles to educate, to direct, to train, to assess, and to evaluate students. Teacher is also demanded to be able to choose appropriate learning material which is in line with the recent curriculum and suits with the students' characteristic in the learning process. The results of research analysis conducted by [5] "teacher has some limitations about scientific concept, pedagogy, and updated information about activities in learning material.

By the development of technology, it will increase teacher's knowledge. Due to the fact that some teachers think that a teacher is always right in class, the class will not have so much improvement. Teacher is not always right, because the learning system done now is not teacher learning anymore, but student center learning. Then, the learning material should be developed.

[6] explained that textbook is arranged for learning process and contains materials that would be taught. According to [7] learning materials are instructional media which are really important in the learning process. Learning material becomes a need or main component both for teacher and students during learning process. Material that will be learned aims to give understanding and mastering the competence completely. Learning material is arranged based in the curriculum needs and students' characteristic to reach the expected outcomes. One of learning source can be used is textbook.

The preliminary study was conducted on October 12, 2015 in SMKN 1 Malang. It was found that during learning process the teacher of Business Principles in SMK Negeri 1 Malang did not have any textbook or handbook based on the regulation of Curriculum 2013. It was because the government has not published textbook of Business Principles for grade XII. Materials in Business Principles subject are renewal materials

from KTSP from Opening a Small Business subject and several new materials. Therefore, the learning material of Business Principles subject in the second semester based on the Curriculum 2013 is still not provided yet.

The learning process was done in class, face to face, attended by students and teachers who was responsible for the class, also the main actor and sources of information in class. The learning process was done by using book of general marketing and handout material from internet. The obstacles in learning rely on teacher would give some bad impacts on the learning process, which were students would talk with their friends, the activeness of students is very low because students passively listened and took note on the material delivered by teacher. One of the factor why the teacher still applied this method was the learning material has not provided or not completed. Besides, it is needed to have an adequate learning material that suited with the school condition and students' condition. Observation was done in several bookstores in Malang, which are: (1) Togamas, (2) Gramedia, (3) Dian Ilmu, and (4) Wilis. Those bookstores seldom provided learning material for Vocational High School, specifically for marketing program using Curriculum 2013 and scientific approach.

Based on the explanation above, the researcher was attempted to develop learning material of Business Principles for Grade XII of Marketing program in the second semester in SMK Negeri 1 Malang.

## II. Research and method

This research used Research and Development adapted from [8] which is stated the 10 stages in the research. The instruments used in this research were questionnaires and post-test. The questionnaires were given to 1 media expert, 1 material expert, 15 students of XII grade of Marketing program in small scale try-out, and 32 students of XII grade of Marketing program in field testing. Moreover, the post-test was only taken in field testing.

However, due to the field condition, limited time, and fund, this research modified the stages of the model proposed by [8]. The stages can be seen in Fig. 1 as follows.

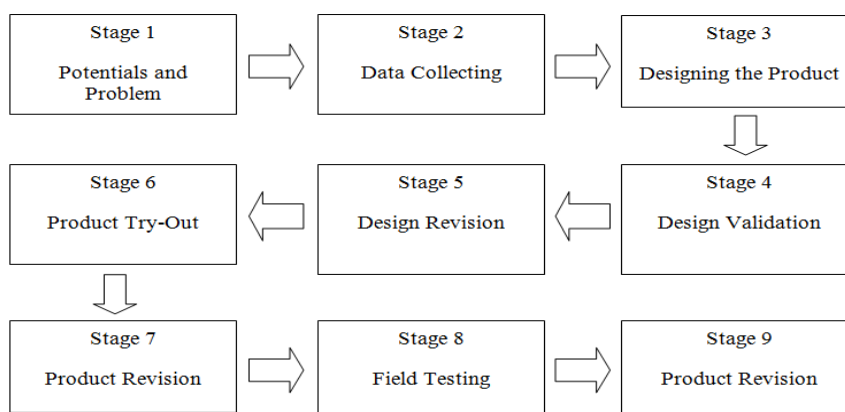


Figure 1. Research Procedures in Developing Learning Materials of Business Principles Using Scientific Approach For Twelfth Grade of Marketing Program in SMK Negeri 1 Malang.

(Adapted: Borg And Gall In Sugiyono, 2013:409).

**Table 1.** Techniques and Instruments in Data Collecting.

No	Types of Data	Methods	Instruments	Subjects
1	Stages of Research	Questionnaire	Questionnaire sheet	Teacher
2	Material Validation	Questionnaire	Questionnaire sheet	Teacher
3	Media Validation	Questionnaire	Questionnaire sheet	Lecturer
4	Students' Responses	Questionnaire	Questionnaire sheet	Students
5	Evaluation	Test	Direct-selling Test	Students

In order to analyze data of the level of validity of a product, this research used percentage classification in [9]. Therefore, it was set as follows.

**Table 2.**Criteria of Validity

No	Percentage	Level of Validity	Description
1	85.01%-100.00%	Very Valid	Applicable without revision
2	70.01%-85.00%	Valid	Applicable with minor revision
3	50.01%-70.00%	Less Valid	Less applicable, major revision
4	01.00%-50.00%	Not Valid	Not applicable

Source: Akbar, (2013: 40-41)

If the results reached the minimum score or above  $\geq 70.00\%$ , it can be concluded that the learning material of Business Principles developed in this research is valid and applicable, and can be used as learning material in school.

### III. Findings And Discussion

#### 3.1 Findings

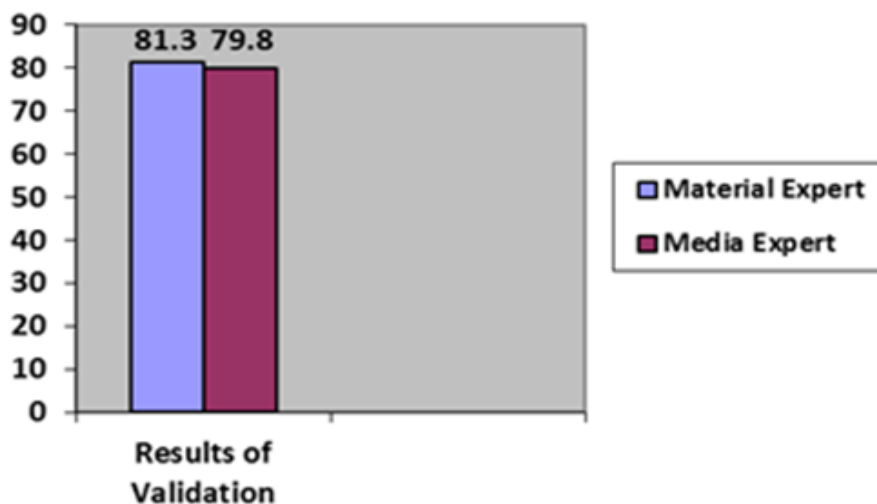
The learning materials of Business Principles using scientific approach consist of 3 parts: introduction, content, and conclusion. In the introduction part, it contains front cover, preface, introduction, contents, list of figures, list of tables, model presentation, learning material components, procedures on how to use, competences included, and a concept map of the materials. The “Content” part consists of explanation of the title of the chapter, basic competences, indicators, purposes of the learning, concept map of the chapter, steps of observing, questioning, data collecting, analyzing, and communicating, Jendela Motivasi (contains motivation proverb), Catatanku (My notes), and feedback. Then, the conclusion part includes summary, glossary, references, and back cover.

#### 3.1.1 Validation Experts

**Table 3.** Results of Expert Validation

No	Subject	%	Descriptor
1	Media Expert	79.8%	Valid
2	Material Expert	81.03%	Valid

Based on the result of validation from media expert, which is 79.8%. It indicated that the learning material of Business Principles is valid and applicable. However, it still needs minor revision. Then, based on the validation from the material expert, it reached 81.03% which means that the learning material of Business Principles using scientific approach is valid, yet it needs minor revision [9]. Therefore, revision was done in the following stage which is design revision



**Diagram 1.** Percentage of Material Expert and Media Expert

Here are suggestions from media expert and material expert to revise the learning material of Business principles to be more applicable in the learning process.

**Table 4.** Suggestions from Media Expert

Suggestions
<ul style="list-style-type: none"> <li>• Change the title of the front cover to make it more formal</li> <li>• Change the tile of the back cover to make it more formal</li> <li>• Perfect the multiple choices</li> <li>• Give an instruction in the part “Catatanku” (My note).</li> </ul>

**Table 5.** Suggestions from Material Expert

Suggestions
<ul style="list-style-type: none"> <li>• Give definition from experts about the definition of on-line marketing</li> <li>• Clear the component of on-line marketing</li> <li>• Complete the materials of on-line and off-line marketing</li> </ul>

- Complete the material with the basis data
- Change the title of chapter on-line and off-line marketing
- Add some materials about APLI and ethic code of APLI

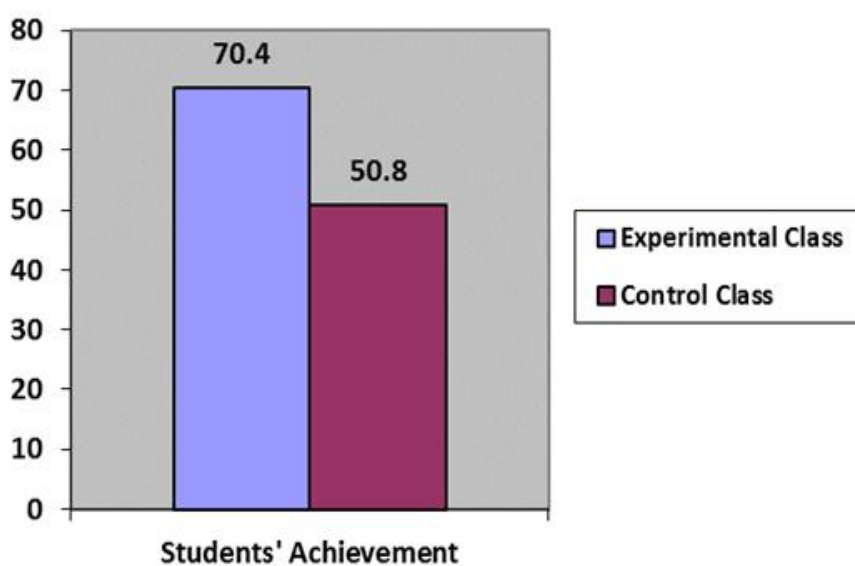
### 3.1.2 Product Try-out in Small Scale

The results of revision based on the experts would be tried out in the control class, which is class XII PM 2 in SMK Negeri 1 Malang that consists of 15 students. The chosen students consisted of 5 students with low score, 5 students with medium score, and 5 students with high score. The results of students' questionnaires to know the acceptability of the product, has been validated by experts, showed 82.7%. It indicated that the product is applicable, yet needs minor revision. The revision was done based on the suggestions from the students about the product, which is adding the glossary. The students thought that the glossary was not completed yet.

### 3.1.3 Field Testing

After revising the product, the following stage was try-out in the experimental class which was class XII PM 1 in SMK Negeri 1 Malang. The total students of the class was 32 students that have not used the product before. From the field testing, the product obtained 83%, which means it is applicable, yet still needs minor revision. The revision based on the questionnaires can be concluded that the learning material of Business principles is interesting, useful, and easy to use by adding pictures that might help to understand.

To measure the students' achievement of class XII PM 1 and PM 2, the result of the test showed that class XII PM1 as the experimental class achieved 70.4 in the average score, while the control class only reached 50.8. Therefore, the average score of the experimental class is higher than the control class. Hereby, it can be seen that the implementation of the product developed is more effective than not using any kind of learning materials. The Diagram 2 shows the students' achievement in experimental class and control class.



**Diagram 2.** Students' Achievement in Experimental Class and Control Class

### 3.1.4 Final Product

After revising the learning material, it resulted learning material Business Principles using scientific approach which was validated and applicable as learning material in Business Principles subject and manual book for teachers.

### 3.2 Discussion

The product which produced in this research and development was in form of printed learning material, learning material of Business Principles using scientific approach. The learning material developed consists of 3 chapters; direct selling, types of direct selling, and database. This learning material was developed to support learning-teaching process in class XII, marketing program in SMK Negeri 1 Malang, based on Curriculum 2013.

According to [1], "One of the keys of success in the implementation Curriculum 2013 is the adequate facility and learning sources." In this case, to support the implementation Curriculum 2013 in SMK Negeri 1 Malang, researcher developed relevant learning material to support learning process in class. So that students

can learn the materials and develop the concept optimally through using the learning material of Business principles that has been developed.

Learning material with scientific approach is a learning material developed in order to make students more active in constructing concept, law or principles through several stages; observing, questioning, data collecting, reasoning, and communicating. It is in line with theory of learning material proposed by [6] that learning material is a set of medium or learning medium that contains of learning material, method, limitations, and how to evaluate which is designed systematically and attractively in order to reach the expected goal, and suit with the scientific approach. [3] explained that scientific approach is a learning process which is designed in order to engage students actively construct a concept, law or principle through several stages: observing (to identify and find out the problems), hypothesizing, formulating hypothesis, collecting data from various techniques, analyzing data, drawing conclusion, and communicating concept, law, and principle which has been “discovered”.

Learning material which used scientific approach could attract students to study because there are illustrations and pictures provided in every chapter. They help students to solve the problems through scientific stages, help learning process to be more conducive, and help students’ activity in construction concept, law, or principle through scientific approach, and train students to communicate. It is accordance with the purpose of scientific approach, according to [10] first, to increase intelligence. Second, to form students’ skills in solving problems systematically. Third, to create a learning condition in which students would consider that study is a need. Fourth, to have high students’ learning achievement. Fifth, to train students to communicate the ideas. Sixth, to build students’ character.

Learning material of Business Principles was designed in order to make students active in constructing a concept. Students were given chance to deepen their skills and develop the information they had. It is in line with the theory of constructivism. According to [11] stated that constructivism learning gave freedom in order to find the desires or needs with support from other(s). Therefore, students can find their self-competence, knowledge, and others so that they can improve. It is also linked to [12] that in constructivism learning is individual’s ability in forming and arranging (constructing) his own knowledge.

This learning material of Business Principles developed contains of basic competence for grade XII in the second semester which is 3.9 to describe direct marketing scope, 3.10 to identify types of direct selling, 3.11 to describe marketing with data basis, 4.9 to evaluate direct marketing scope, 4.10 to clarify the types of direct selling, 4.11 to manage direct selling with data basis. The basic competences chosen were based on the results of research and data collecting done by researcher. It was based on the initial stage of potentials and problems during conducting observation and teacher’s interview in SMK Negeri 1 Malang that implemented Curriculum 2013. Learning material is an important part in the learning process, even in the learning which centered to material, then the core of the learning itself [4]. From the explanation, it showed the importance of arrangement of material which is derived from the recent curriculum. In accordance with the characteristic of Curriculum 2013, it is needed a learning material provided Business Principles through the steps in scientific approach.

The developing of learning material of Business Principles using scientific approach aims to produce learning material completed with the manual book for teacher. So that teacher could understand the procedures on how to use the students’ book. It is in order to make the learning process flow well and students do not go far from the limitation of the material. Therefore, students could understand the reference of learning process in class. Before studying the contents of the learning material, students should read the instructions so that students will feel easier in doing the classroom activity. Students are not allowed to continue the following learning activity before mastering the material well. Therefore, it is to reach the goal of the use of learning material effectively. Learning material is assisted with the handbook for teacher as a reference for the subject teacher in guiding students during learning process in class.

Based on the research done, researcher implemented scientific approach as steps for students to do learning process. Scientific approach was chosen because this approach was implemented in Curriculum 2013. The scientific approach is a learning approach whose learning activities included observing, questioning, collecting data, processing the information, and communicating. The scientific activity contains in 5 steps listed in a chapter or in a chapter can be divided into several meetings so that students can master the competences in the learning process. The learning material of Business principles developed already covers the elements stated by [13] which are: first, there is instruction for learning. Second, there is a competence that is going to complete. Third, there is supported information. Fourth, there are some exercises. Fifth, there is manual work or work sheet. Sixth, there is an evaluation.

From the result of developing done, the learning material of Business Principles using scientific approach accommodated students to be active involving the learning process. These are the steps: first, observing step. In this step students are provided with the real illustration in every chapter. Students’ knowledge about the previous material was reviewed again to stimulate students’ thought before learning the current chapter. Second, questioning step. In this step, students are provided with a table to make some questions relate

to things they want to know in that chapter. In this step, students are taught with curious feeling so that they can formulate questions in order to form the critical thinking to live brightly and long-life learning. Third, collecting data/information step. In this step, students have already provided with the material related to the chapter. It is to help student to collect that information through explanation of the materials which is arranged systematically using scientific language. Fourth, associating step. In this step, students are demanded to make questions that will be answered by their friend to obtain conclusion in form of knowledge. Fifth, communicating step. In this step, students are demanded to communicate their conceptual result in form of written or oral in front of class. It is to clarify the answer for the question. In this step, students should be able to interact with all of students by expressing their opinion, argument, or feedback about that chapter.

After having the 5 stages, the next stage is students were able to do the competence test which aimed to measure students' ability in the end of learning process. During the learning process, the teacher did not have to explain the material in detail, yet the teacher must control the learning process so that the process was conducive. Moreover, the teacher should gave guidance to students about things which were considered important to discuss together. Therefore, the role of teacher during learning process is as a facilitator and mediator to help students [14]. Teacher as a facilitator should provide adequate learning material to ease the students in learning [14]. [6] explained that textbook is arranged for learning process and contains materials that will be learned.

The learning material was done the revision stage, then it would be tried out on students in class XII PM 1 as the experimental class. The field testing aims to determine the difference of students' learning achievement that used the product and did not use the product. To measure the cognitive area was done using posttest. Cognitive area emphasizes on capability development and intellectual skill [15]. From the result of the post test, it showed that there was a light difference in students' learning achievement. It was because the experimental class used the learning material using scientific approach, while the control class did not use the learning material using scientific approach.

Learning outcomes in cognitive area is the intellectual learning outcomes [16]. It is in line with the previous research conducted by [17] stated that developing IPA terpadu module based on SALINGTEMAS with Biomassa as Renewable Alternative Energy Sources was successfully tried out in the initial field and main field with very good result. It is also accordance to the research done by [18] stated that the learning material developed met the criteria of validity, effectivity, practicality and can improve the critical thinking. It is supported by a research conducted by [19] it was found that the result of posttest in experimental group is significantly higher that control group. In this case, the experimental group used module, while the control group did not use module. In that research, the module developed is module of leaning with playing. In addition, a research from [20] stated that the use of module can improve students' cognitive and improve students' learning achievement because students would be more actively involved. A research conducted by [21] stated that students' ability in understanding a concept through discussion is better done to solve and express the problems well. SETS approach (Science, Environment, Technology, Society), in scientific research conducted in chemistry education field, leads to constructivism approach.

Constructivism theory contains two different genres which are nativism and empirism. Nativism stated that knowledge is an idea that has already existed as a carrier from human or outside. However, empirism stated that knowledge comes from an experience or from outside. Constructivism has tight relationship with the implementation of scientific approach. It has been long time that teacher gives freedom to students to develop their own knowledge, beginning from the elementary level until university level to be active in learning process. According to [22] in the research entitled *The Impact of Constructivism on Education* stated that student-centered learning made students more active in the teaching and learning process, it emphasized on the social construction that affects significantly. According to [4] scientific approach includes observing, questioning, collecting data, reasoning, and communicating.

Beside based on the result of leaning achievement, the effectiveness of learning material can be seen during leaning activity. It was already observed by 2 observers. Based on the data of students' activity in class, it was found that experimental class was more active that control class. The students in control class preferred talking with their friends to listening to teacher's instruction during leaning process. It was different from the experimental class which is more enthusiastic in following the learning activity.

The results of this research were supported by previous research conducted by [4] in which the developing of IPA terpadu module that has already been tried out in the initial field, and main field. It results very well, which in this case is the construct aspect.

Based on the results of the product explained, the learning material of Business Principles using scientific approach has some strengths and weaknesses. The strengths of the product are as follows: (1) based on the suggestions from students in small scale try-out and field testing, the learning material is interesting to learn due to the illustrations and pictures that help students understand the material. (2) The learning material can improve the activity in constructing that knowledge in learning process. While, the weaknesses of the product

are as follows: (1) the materials in the product should be developed again by adding some other references which are more relevant, because the materials in Business Principles based on the Curriculum 2013 are categorized as new, specifically on the data base basic competence. (2) The developing of the product can only be applied for the school which has already implemented Curriculum 2013.

#### IV. Conclusion And Suggestion

##### 4.1 Conclusion

Based on the results of the revision, it can be concluded: first, this research and development (R&D) produced learning material of Business Principles using scientific approach for Vocational High School, Grade XII in the second semester, marketing program, completed with the teacher's manual book. Second, the criteria of validity of the product based on the experts validation, small scale try-out, and field testing is valid and applicable, yet it needs minor revision. Moreover, revision was already done for the betterment of the product. In addition, the learning material developed was considered effective due the fact that students' achievement in the experimental class is higher than the control class

##### 4.2 Suggestion

Based on the try-out, the learning material developed categorized as valid and effective to use. However, there are still weaknesses found in the product during the implementation. It is suggested: first, utilization suggestion for students, before the learning process, it is suggested to study the material in the house first. It aims to use the learning material of Business Principles using scientific approach can be applied well. Besides, students should follow the instruction in the learning material correctly. If they have any difficulties, they can ask the teacher. Second, utilization suggestion for teacher, teacher should use the learning material of Business Principles using scientific approach completed with teacher's handbook in the learning process. Additionally, because teacher is the one who will be asked by students if they have any difficulties, teacher should comprehend the material developed first. The developing of learning material could motivate the teacher to develop other learning materials in different subject as pedagogic competence.

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