

DEVELOPING MEASURING TECHNIQUE TEXT BOOK TO INCREASE THE STUDENT'S ACHIEVEMENT IN MUHAMMADIYAH UNIVERSITY OF PURWOREJO

Suyitno

Automotive Technique Education Program Faculty of Education and Teacher Training,
Muhammadiyah University of Purworejo
E-mail: yitnobook@yahoo.com

Abstract

This study is to 1) describe text book developing to increase the student's achievement in automotive technique program faculty of education and teacher training, 2) know the quality of developed text book, 3) find the effectiveness of text book toward experiment class and control class. This study is reseach development. Object of this study is first semester student class 1A and 1B. It is used questionnaire for data collecting. The result of the study shows 1) the phase of text book developing focusing measuring technique on first semester achieved searching the problem, finding information, product design, design revise, test product, use of product and product revise; 2) the validation has been done by some experts. The test from first expert shows 96.5% suitable and the second expert displays 100% correct, the third expert indicates 75% fair and the small group test appears 92,25 % effective. The field test demonstrate 92,66 % usable; and 3) the statistic data class rate of activity between experiment and control class has been found by T-test and it is 5,614 by $p=0,000<0,05$. It shows there is significant result which differentiates experiment class and control class. The evaluation analysis proves 69,78 for average of class of experiment and 80,04 for the average of control class. There is significant point of achievement for student using text book. In the result of the study, the text book of measuring technique is able to increase the student's achievement and effectively stimulate the student's understanding.

Keywords: developing, text book, student's achievement, student

1. Introduction

According to Evans *et al.* in Ralph (2011: 3), some skills in vocational school are: 1) re-contextualizing especially academic knowledge through the design of curricula to make it relevant to work; 2) Pedagogic re-contextualization through the explicit linking of contexts through teaching; 3) Workplace re-contextualization through which applications of knowledge are supported through mentorship; and learner re-contextualization through both shared experiences among learners and also the linking of prior experiences with new knowledge.

Vocational education based on Kuswana (2013: 157) *pendidikan yang diselenggarakan pada suatu lembaga berupa institusi bidang pendidikan (sekunder, pos sekunder perguruan teknik) yang dikendalikan pemerintah, atau masyarakat industri.*

Pendidikan kejuruan merupakan sebuah konsep pengalaman menyeluruh bagi setiap individu yang belajar untuk kesuksesan dunia kerja. Dalam hal ini, pendidikan kejuruan banyak belajar tentang persiapan-persiapan sebelum ke dunia kerja Pembelajaran itu mulai pembelajaran kognitif, afektif, dan psikomotorik

(Prosser, 1950: 2). *Pendidikan kejuruan adalah pendidikan yang mempelajari pelatihan secara spesifik yang dapat digunakan dalam dunia kerja* (Pavlova, 2009: 7).

Agreeing with the definition, vocational education can be held by government or non-government institution. It may be run by private institution. The fundamental thing is to build the skill to work according to the interest and ability.

The vocational education focuses on development and the achievement. The skill will be built by some efforts and finally achieve the competence. The quality is the measure of achievement. Finch (1999: 14) said the ultimate success of a vocational and technical curriculum is not measured merely through student educational achievement but through the result of that achievement-result that take the form of performance in the work world. Thus, the vocational and technical curriculum is oriented toward the process (experience and activities within the school setting) and the product (effect of these experiences and activities on former student).

In learning and teaching on automotive education program, faculty of teacher training and education, Muhammadiyah University of Purworejo, The lecture still uses textbook from another university. The limitation of the textbook is

actually in measuring technique. It tends to use speech to convey the lesson in class. Then they instruct to find other referent one in the same lesson. It made the student too maby jobs.

Therefore, it needs textbook which can be alternative reference for student to ease their learning and achieve the target.

2. Method

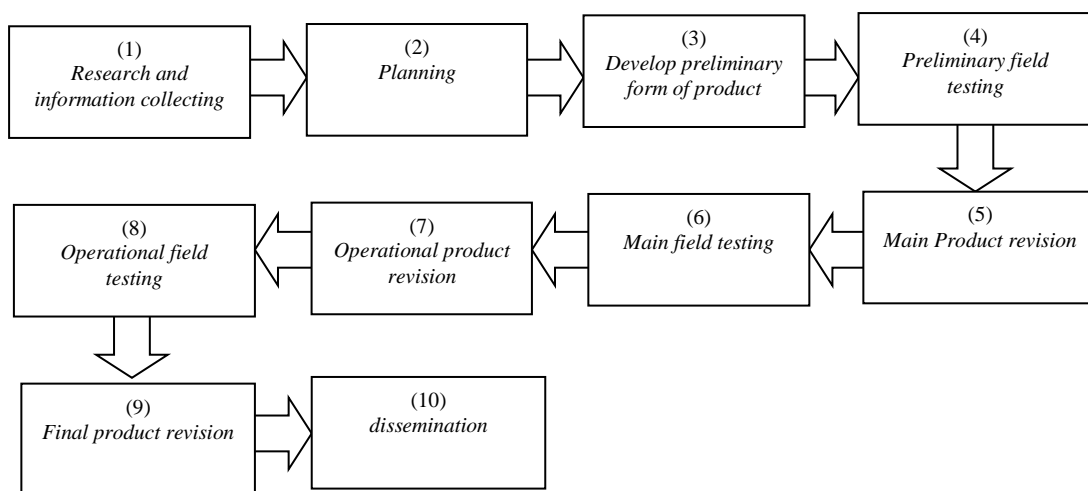
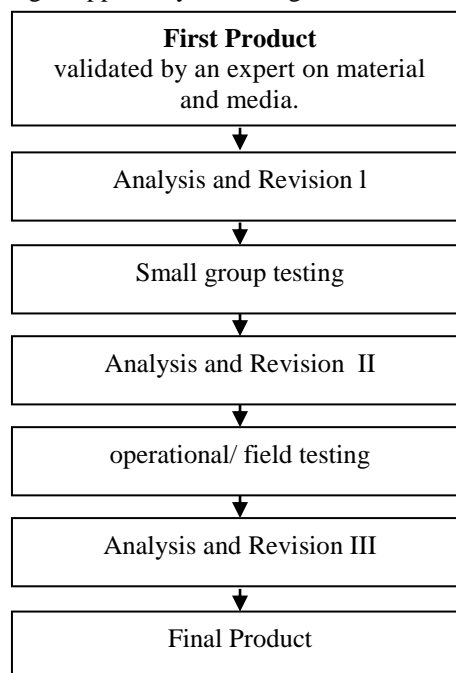


Figure 1. Development Model by Borg & Gall (1989)

This design study uses research and development to create such a model and test the effectiveness of the product. The location of the study is in automotive technique education program, faculty of teacher training and education, Muhammadiyah University of Purworejo. Model is sharply developed by Gall, Borg & Gall (1983:775). It consists on 10 steps:

1. Research and information collecting.
2. Planning.
3. Develop preliminary form of product.
4. Preliminary field testing.
5. main product revision.
6. Main field testin.
7. Operational product revision.
8. Operational field testing.
9. Final product revision.
10. Dissemination.

Testing after being validated by an expert on material and media. The design of testing is applied by following this scheme:



Picture 2. Testing product

Population of the study is the first grade student in automotive education program. They are totally 60 students. They are divided on two class, 1 class = 30 students. Class 1A is the

experiment class and class 1B is the control class. It is to find out the effectiveness by T-test and the average of the achievement among the classes.

3. Results

The data will be re-analyzed based on the component on each paper and observation sheet has submitted. Analysis to know how far the textbook can be developed and which part needed to revised.

1. The result of data analysis by expert of material

This is the final revised of the textbook analysis.

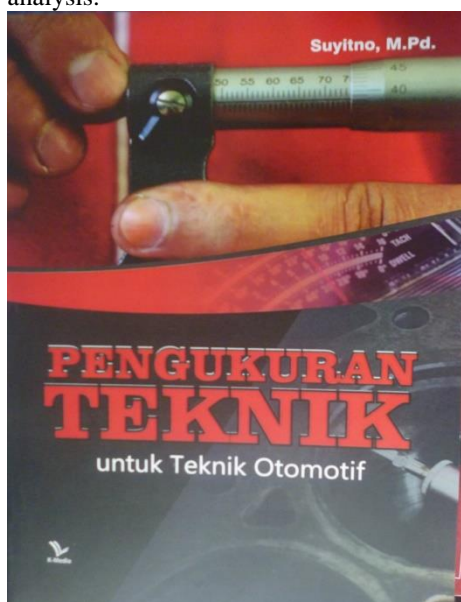


Figure 3. The textbook development, topic: technique measuring

Based on the expert analysis, it shows 85% for achievement. It means that the development textbook for measuring technique is valid and can be applied for teaching media.

These are the result of expert analysis:

- 1) The essential of the textbook is connected with its objective. The expert noted 'A' meaning relevant with the goal with score 4 or 100%. Based on data interpellation criteria, the percentage of 100% means valid because animation is needed.
- 2) The easiness to search the material by using the textbook, the expert gave 'B', with the score 3 or 75%. According to data interpellation criteria, it shows 100%, meaning

valid because it uses narration and picture.

- 3) The arrangement of content got 'B' means good with score 3 or 75%. According to data interpellation, it shows 75% meaning fair. The material is well-systemic.
- 4) The material relevance shows A with score 4 or 100%, valid because the material is based on the student's need.
- 5) The linguistic feature is proper for the student. The analysis shows 'A' with score 3 or 75%. It is valid.
- 6) The form is appropriated with the focus theme. It shows 'A' with score 4 or 100%. According to data interpellation criteria, shows 100% valid. The form of textbook shows the presented theme. It also uses animation to help student understand. From the testing analysis, the expert gave the recommendation for the development animation; it need to attach the evaluation test. So I bring them into each chapter.

2. The effectiveness result of using the textbook

Table 1. Result Data

STATISTIC SOURCE		1A	1B	Σb
Σk	N	30	30	60
	\bar{X}	80,04	69,78	76,91

1A: Group of student with textbook measuring technique.

1B: Group of student without textbook measuring technique.

\bar{X} : average

n : the total of sample

From evaluation test, average score of class experiment (class A) is 80,04 and control class (class B) 76, 91.

In the process of making textbook, there are 3 steps; a) need analysis, b) product developing, consisting indext design, content and navigation, c) personal test, group test and using final product.

The effectiveness analysis, there is differentiation between small and large group. The class control shows the score 76, 91 and the experiment show score average 80,04. It means group using textbook is more effective than group without using textbook.

This result can be seen clearly in learning-teaching process. By using textbook, student are forced to study well. And the textbook itself can be used for reference or alternative book also give better contribution of student's understanding. In this study shows the measuring technique using textbook give positive effect toward the learning and teaching process actually in gaining the achievement.

4. Discussion

The result of the study shows 1) the phase of text book developing focusing measuring technique on first semester achieved searching the problem, finding information, product design, design revise, test product, use of product and product revise; 2) the validation has been done by some experts. The test from first expert shows 96.5% suitable and the second expert displays 100% correct, the third expert indicates 75% fair and the small group test appears 92,25 % effective. The field test demonstrate 92,66 % usable; and 3) the statistic data class rate of activity between experiment and control class has been found by T-test and it is 5,614 by $p=0,000<0,05$. It shows there is significant result which differentiates experiment class and control class. The evaluation analysis proves 69,78 for average of class of experiment and 80,04 for the average of control class. There is significant point of achievement for student using text book. In the result of the study, the

text book of measuring technique is able to increase the student's achievement and effectively stimulate the student's understanding.

5. Acknowledgement

Thanks to the dean of faculty of teacher training and education, the big support from the head of technique education program, and also the students who contributed all the research.

REFERENCES

- [1] Arsyad, Azhar. 2013. *Media Pembelajaran*. Jakarta: PT. Raja Grafindo Persada
- [2] Dick, Walker & Carey, Lou., James O. (2001). *The systematic design of Instruction* (5th ed). New York. Longman.
- [3] Finch, Curtis R. & Crunkilton, John R. (1999). *Curriculum development in vocational and technical education. planning, content, and implementation*. Sidney: Allyn and Bacon Inc.
- [4] Kuswana, Wowo Sunaryo. (2013). *Filsafat Pendidikan Teknologi, Vokasi dan Kejuruan*. Bandung: Alfabeta
- [5] Pavlova, M. (2009). *Technology and Vocational Education for Sustainable Developmen, Empowering Individuals for The Future*. Bonn; Springer
- [6] Prosser. Charles A. And T.H. Queqley.(1950). *Vocational Education in Democracy*. Chicago: American Technical Society
- [7] Syah, Muhibbin, 2015. *Psikologi Pendidikan Dengan Pendekatan Baru*. Bandung: PT. Remaja Rosdakarya
- [8] Sanaky, Hujair AH. 2005. *Media Pembelajaran*. Jakarta: Safiria Insania Press
- [9] Sardiman, A.M. 2007. *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: PT. Raja Grafindo Persada