



## Developing Performance Assessment-Based Authentic Assessment of Business Plan Subject

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### Abstract

The purpose of this research and development was to produce a product in the form of an authentic assessment instrument on cognitive and psychomotor aspects based on performance assessment in productive learning of business plan subject that was valid and feasible to be implemented in Vocational High School (SMK). The model adopted Borg & Gall's Research and Development (R&D) model. The model used six-stages model of ten stages which were performed, namely: (1) potential and problems; (2) data collection; (3) development of product drafts; (4) limited trials; (5) revision of the trial results; and (6) final products. The results of the study were the instrument products in the form of Student Worksheets (LKS) on cognitive and psychomotor assessment based on performance assessment for the business plan subjects were considered valid and feasible, in form of test and non-test questions, performance assessment sheets which were used to assess student performance when practicing business plan learning materials. Meanwhile, the quality of the questions used have also met the level of difficulty and the discrimination power level.

### Abstrak

*Tujuan dari penelitian dan pengembangan ini adalah untuk menghasilkan produk dalam bentuk instrumen penilaian otentik pada aspek kognitif dan psikomotor berdasarkan penilaian kinerja dalam pembelajaran produktif mata pelajaran rencana bisnis yang valid dan layak untuk diterapkan di SMK. Model penelitian ini mengadopsi model Borg & Gall (R&D). Model yang digunakan meliputi enam tahap dari sepuluh tahap yang dilakukan, yaitu: (1) potensi dan masalah; (2) pengumpulan data; (3) pengembangan konsep produk; (4) uji coba terbatas; (5) revisi hasil uji coba; dan (6) produk akhir. Hasil dari penelitian ini adalah produk instrumen dalam bentuk Lembar Kerja Siswa (LKS) pada penilaian kognitif dan psikomotor berdasarkan penilaian kinerja untuk mata pelajaran rencana bisnis dianggap valid dan layak, dalam bentuk pertanyaan tes dan non-tes, penilaian kinerja lembar yang digunakan untuk menilai kinerja siswa ketika mempraktikkan materi pembelajaran rencana bisnis. Sementara itu, kualitas pertanyaan yang digunakan juga memenuhi tingkat kesulitan dan tingkat kekuatan diskriminasi.*

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## INTRODUCTION

A research and development on performance assessment based authentic assessment is important, because practically it can be used as a guideline for teachers in order to be able to make assessment and decision making at the end of semester in report cards. In addition, it is as an alternative to facilitate cognitive and psychomotor assessment in business plan subjects. Through this research, we expected to train students' abilities in assessing themselves and peers objectively, fair and in integrated manner.

This research was conducted at SMK PGRI 2 Malang in X grade of Marketing Class. The subject analyzed were business plan subject by taking into account 2 Basic Competencies (KD), namely: KD by applying procedures for making business proposal and KD by preparing business proposal.

Mueller in Basuki (2014:168) defines the authentic assessment as a form of assessment that requires students to carry out real-world tasks that show meaningful applications of essential knowledge and skills. Likewise, Arifin (2016:180) suggests that the authentic assessment is an assessment technique used to determine the level of students' achievement competencies in the form of their ability as it is, not only something obtained in the classroom. The authentic assessment does not only measure what students previously know, but rather emphasizes what students can do. Whereas Ngadip (2010:10) explains that authentic tasks are tasks that are actually charged to students to measure the achievement of competencies that are taught both when learning activity is still ongoing or when it is over. In determining authentic assignments, firstly the teacher needs to examine the suitability of the tasks with the standard (competency) and the real life.

Permendikbud Number 66 of 2013 states that the authentic assessment is a comprehensive assessment to assess the input, process and output of a learning. The authentic assessment refers to concrete and tangible assessment made by students in developing their knowledge and skills which were in accordance with the learning objectives. Its existence is expected that the assessment process which is carried out by the teacher does not only refer to the cognitive domain, but also to explore the ability of students through real assessment with various tasks and practices which can be completed by students.

Mueller (2015) explains that there are several steps in developing authentic assessment instruments, namely: (1) standard determination; (2) determination of academic assignments; (3) compilation of criteria; and (4) making assessment rubrics.

The authentic assessment of skill aspect competency can be done through performance assessment. According to Hamid (2011:136), performance assessment is an assessment which is carried out by observing the activities of students in doing something. Whereas according to Arifin (2013: 180), performance assessment is an assessment technique that is used to determine the level of mastery of students' skills through several tests. Above all, performance assessment is used to assess the ability of students through assignments. The assignment is specifically designed to produce responses (oral or written), produce works (products), or show the application of knowledge. Therefore, the performance assessment is more directed at assessing the achievement of competencies that requires the students to complete a task.

The characteristics of performance assessment are: (1) students do, create, build, produce, or do something; (2) skills in understanding and reasoning that are needed and assessed; (3) the involvement of continuous work, every day and week; (4) asking students to explain, justify, and defend; (5) the involvement of important ideas and substance; (6) depending on a trained assessor; (7) several criteria and standards are presented and announced; (8) usually there is no single "right" answer; (9) if authentic, its performance is based on context and the real world (Mc.Milan 2007: 230). Whereas Widoyoko (2014: 74) explains that there are several things that must be considered when setting the standards of a good and correct performance assessment, namely: (1) the validity, that is standards in accordance with competencies or skills assessed; (2) the agreement, that is the standard of assessment which is previously agreed and accepted by all students who will get an assessment; (3) realistic, that is the standard of assessment that is in accordance

with students' abilities; (4) the objectivity, that is the standard of assessment is able to reflect the actual situation without increasing or reducing reality and also it is difficult to be influenced by the subjectivity of the assessor (teacher).

However, the performance assessment is very important. It will assess the actual competency of students from both cognitive and psychomotor aspects. Nurgiyantoro (2008: 253-254) emphasizes that the performance assessment has a distinction from conventional assessment, namely cognitive aspect orientation. Even though the success of learning is seen from all three aspects, namely, the cognitive, affective and psychomotor aspect.

In addition, Kunandar (2014:264) argues that there are several aspects that must be assessed or measured, namely: (1) quality of work completion; (2) skills in using tools; (3) the ability to analyze and plan work procedures to completion; (4) the ability to make decisions based on the application of information provided; and (5) the ability to read, use diagrams, images, and symbols. Meanwhile Suwandi (2010: 72) gives an emphasis on performance assessment considering about several things, namely: (1) the step performances which are expected to be done by the students in order to show the performance of a competency; (2) the completeness and the accuracy of the aspects to be assessed in the performance; (3) the special abilities which are needed to complete the task; (4) try the abilities that will be assessed not too much, so that all can be maximally observed; (5) the assessed abilities are sorted by the observed sequence; (6) the students have obtained all materials, tools, instruments, and drawings related to the completion of the test; (7) the students already know what to do and how long it takes and what aspects are assessed; (8) the teachers should not give assistance to students, except to explain the instructions.

Based on interviews with productive teachers of marketing department of SMK PGRI 2 Malang, apparently, teachers were still having difficulty in formulating psychomotor performance assessment format in accordance with the curriculum 2013 in 2017 edition. In business plan subject assessment, the teachers more measured the cognitive assessment aspect through test and non test. The test assessment was done through practicing the questions in Student Worksheets (LKS) with multiple choice questions and description, while non-test assessment was mostly done through assignments and presentation. In particular, for psychomotor assessment, rigid and operational assessment rubrics have not yet been made, as a result the psychomotor assessment that were used were still not able to measure what students did in real terms. Owing to that, it is necessary to develop valid and feasible performance assessment instruments based on performance assessment in order to assess student performance authentically.

In business plan subject, authentic assessment needs to be done due to its effectiveness which can significantly assess the ability of students through their experience and skills by applying the principles of assessment, sustainable implementation, authentic, accurate, and consistent evidence.

These circumstances are in accordance with several relevant previous research. Hidayati, et al. (2014) propose the hands on activity-based performance evaluation sheet product aimed to measure the developed creativity, based on the results of validation by expert lecturers, physics teachers and colleagues, got an average of 3.14. It can be said that the product can be categorized as "good". The results of learning implementation by using hands on activity-based performance assessment to measure creativity got 3.21, so it was categorized as "good". Besides, the results of student responses to hands on activity-based performance assessment to measure creativity in physics learning gained 3.23 and belonged to "good" category. The products which were developed were viewed from the results of validation, the implementation of learning and students responses. In the end, the products can be categorized as "feasible to use".

Another supporting research comes from Khotimah, et al. (2017) whose authentic assessment tools developed have met the criteria, namely valid, reliable, and feasible to use. Again, Sauma, et al. (2017) research shows the same results as Khotimah, et al.'s research.

Hadi, et al. (2016) research entitled "The Development of Authentic Assessment Tools in Craft and Entrepreneurship Subject in Vocational High School" also supports this research. It reports that the authentic assessment tools for craft and entrepreneurship subject developed have

empirically met valid and reliable criteria and also the practical criteria based on the opinions of experts and practitioners. The same is the case with research conducted by Astuti, et al (2012).

However, the assessment instruments developed by the researchers were assessment instruments on basic competencies business plan subject which applied the procedures for making and preparing business proposals for X grade of marketing class. This instruments were designed to optimize the assessment of the knowledge and the skills of students in implementing procedures for making and preparing business proposal. In this basic competency, students were prepared to be able to make business proposals since they are expected to be able to face the industrial world of work in the future. The students' learning outcomes in business plan subjects is important to be carried out thoroughly and objectively since business plan subject is basically a subject which is designed to improve the students skill in facing the work in the field of marketing.

Thus, the assessment instruments used by the teacher to measure the level of students' achievement competencies play a very important role. If the assessment instruments prepared by the teacher do not comply with the Graduate Competency Standards (SKL), Core Competencies (KI), Basic Competencies (KD), characteristics and complexity of the material, the instruments will not be able to provide accurate information about the level of students' competency achievement. The instruments used by the teacher must be able to stimulate high-level thinking skills, logic, and analysis from students. Therefore, the instruments must be able to measure the actual competencies of students.

The assessment instruments developed were in the form of cognitive assessment instruments by having multiple choice, description and exercises to measure students' learning outcomes for each meeting. Meanwhile, the developed assessment instruments in the psychomotor domain was realized in form of Student Worksheets (LKS) and performance observation sheets (performance assessment). Frankly speaking, the cognitive measurement which became a weakness for teachers in Vocational High Schools was to make the assessment rubrics for test in form of subjective questions, while the weakness in psychomotor domain lied in the assessment rubric and observation sheets that were less rigid, and less operational. Therefore, the researchers tried to develop them.

## **METHOD**

This research used research and development method. Research and Development (R&D) method is a process or steps to develop a new product or improve the existing products which can be accounted for (Sukmadinata, 2012:164). In this research, the R&D method was used to produce products and test the validity and feasibility of authentic instrument assessment products on cognitive and psychomotor aspects based on the performance assessment in productive learning business plan subject.

The subjects of this research were X grade students of Marketing class of SMK PGRI 2 Malang which amounted to 30 students. The selection of students was based on the character of the class in which X marketing students had a good character of cooperation and had a fairly tight class competition. The subjects were in even semester whose KD required them to make the procedure of business proposal and KD for preparing business proposals. The instrument used in the data collection of R&D was questionnaire. The use of questionnaire instrument aimed to make the assessment carried out by the validator and the test subject were directed and appropriate to the expected product criteria. There were four types of questionnaires which had been used for data collection, namely: (1) content validation questionnaire and construct for validator; (2) questionnaire on teacher responses to LKS; (3) performance assessment-based authentic assessment; and (4) students response questionnaires to LKS.

The research and development model adopted Borg & Gall's Research and Development (R & D) model (2003:775) was only used from the first to the sixth stages since it was adjusted to the steps of the research implementation and the objectives of research and development. The steps taken were (1) potential and problems, (2) data collection, (3) development of product drafts, (4)

limited trials, (5) revision of trial results, (6) final products. The steps of research and development can be seen in the following figure.

The data analyses technique for the instruments were content validation and limited trial results. The content validation itself was estimated validity through testing of the feasibility or relevance of the contents of the test through rational by a competent panel or through judgment or expert assessment (Azwar, S. 2012: 112). Meanwhile, this validation was done through the validation of assessment and materials. The validation was carried out by 3 Lecturers of Management Department in Economic Faculty (FE) of UM (Universitas Malang) and 1 Business plan teacher at SMK PGRI 2 Malang. The validators used were more than 1 person so that the results can be considerations in making a decision on each question item used measure the agreement between experts / assessors about what to fill (Lawshe, 1995). Then, the validation was done by providing a product assessment questionnaire to the expert validators in order to determine the feasibility of the instrument. The assessment questionnaire was completed with a comment and suggestion column which were used to revise the assessment instrument. The next step was a limited trial.

The limited trial was conducted in the X grade of marketing class. For cognitive questions, it was carried out on 30 students to find out the level of difficulty and the discrimination power level in multiple choice objective questions. On the other hand, for the psychomotor, the test was conducted on 12 students to find out how the teacher's response to the performance assessment-based authentic assessment instruments developed and to find out the students' readability test on the questions given. The trial was conducted by giving a questionnaire to the teacher and students at the end of the lesson. The data result can be used to revise the product produced.

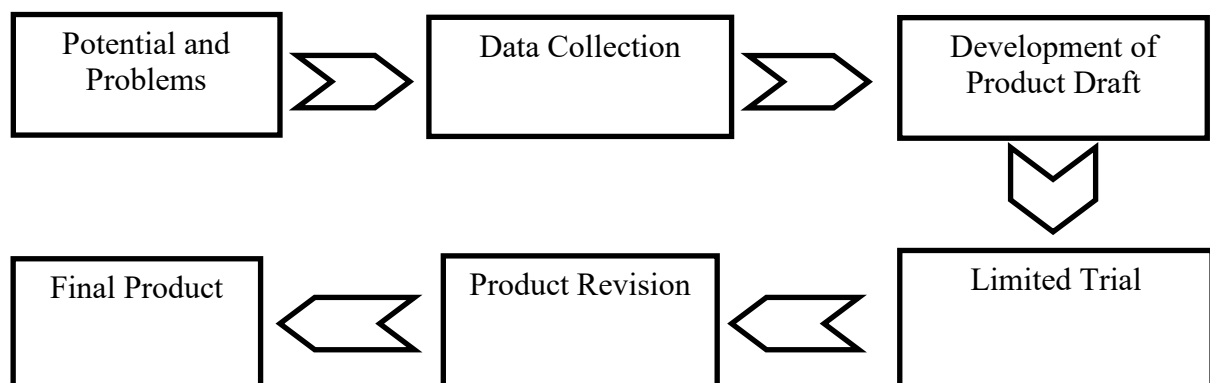
The data analysis technique used was by using the percentage formula as follows (Akbar, 2016).

$$P = \frac{TSe}{TSh} \times 100\%$$

Information:

- P = percentage
- Tse = Total empirical score
- TSh = Expected maximum score

Furthermore, the eligibility criteria for a product used the following criteria in table1.



Source: modified from Borg & Gall, 2003: 775

Figure 1.  
The Research and Development Stages of Performance Assessment-Based Authentic Assessment in Business Plan Subject

For the analysis of the quality of the problem, the researchers used the analysis of the difficulty level of the questions and the differences in the problem. The analysis of the difficulty level of the questions was used to measure how much the degree of the questions. A good question has moderate difficulty, which is not too difficult and not too easy. To calculate it, the researchers used the following formula (Arifin, 2016:270):

$$TK = \frac{(WL + WH)}{(nL + nH)} \times 100\%$$

Notes:

TK = Difficulty Level

WL = The number of lower group students who answered incorrectly

WH = The number of upper group students who answered incorrectly

nL = The number of low group

nH = The number of low group

The criteria for the difficulty level of the objective form questions used the following in table 2. Then, the analysis of differentiating questions was needed to measure whether the questions were able to distinguish students who had mastered the competency to students who had not mastered it based on certain criteria. The formula used was as follows (Arifin, 2016:271)

$$DP = \frac{(WL - WH)}{(n)}$$

Information:

DP = Distinguishing Power

WL = The number of the lower group students who answered incorrectly

WH = The number of the upper group students who answered incorrectly

n = 27% x N

Table 1.  
The Percentage Analysis of Feasibility Criteria

No	Percentages	Description
1.	81,00% - 100,00%	Very valid, very effective, very good, can be used without improvement.
2.	61,00% - 80,00%	Fair, quite effective, good enough, can be used but needs minor repairs.
3.	41,00% - 60,00%	Less valid, less effective, or less good, need major repairs, it is recommended not to be used.
4.	21,00% - 40,00%	Invalid, ineffective, not good, cannot be used.
5.	00,00% - 20,00%	Very invalid, very ineffective, very bad, unusable

Source: Akbar, S, 2013

Table 2.  
The Criteria for Test Items Difficulty Level

No	Percentage	Information
1.	≥ 73%	Difficult
2.	28% - 72%	Medium
3.	≤27%	Easy

Source: Arifin, 2016:270

The higher the distinguishing coefficient of an item, the more capable the item to distinguish between students who master the competency with students who lack of mastery of competency. Then, the criteria used in table 3.

## RESULTS AND DISCUSSION

The validation was done by 4 validators. Three validators were lecturers of Management Department of Malang State University, while the other was a Marketing teacher of SMK PGRI 2 Malang. As for the criteria used in determining the assessment expert, namely the lecturer of Management Department of Malang State University, were as follows: the assessment expert (1) is a lecturer of learning evaluation course, (2) has an educational background which minimally was S2, (3) has an educator or lecturer certificate, and (4) has been working more than 15 years. Based on these criteria, the chosen assessment expert validators were Mr. Dr. Agus Hermawan, M.Sc., M.Bus and Drs. I Nyoman Suputra, M.Sc.

On the one hand, the criteria used to determine the material expert / content, namely the Marketing teacher of SMK PGRI 2 Malang were as follows: the content expert (1) is a Business plan subject teacher at SMK PGRI 2 Malang, (2) has a minimum educational background S1, (3) has minimum 5 years teaching experience, while for the Management lecturer of Malang State University were as follows: the content expert (1) is a lecturer in business plan, (2) has an educational background which minimally S2, (3) has an educator or lecturer certificate, (4) has been working more than 15 years. Based on these criteria, the selected content expert validators was Ms. Kunti Endah Pratiwi, S.E.S.Pd (vocational teacher) and Dr. Titis Shinta Dhewi, S.P, M.M. (lecturer). The followings are the instruments of the data validation of performance assessment-based authentic assessment.

Based on table 4, the result of the assessment validation of cognitive assessment instruments on 15 items, validators 1 and 2 (lecturers) gave an assessment that the instrument of cognitive aspect assessment (knowledge) was very feasible of 92% and 94.74%. Besides the quantitative data, the qualitative data were also obtained in the form of comments and suggestions which were input as improvements to the products produced. The comments and suggestions which had been given by the two validators are: (1) the best example template should be given in the proposal format/you can see the example of systematic writing on the business plan course; (2) in the example of making a proposal, namely making kebabs it would be more interesting by making charts; (3) direct the assessment to C3 and C4; (4) for subjective test question sentence, there were still several interpretive questions, namely number 3.

In addition, the validation results on psychomotor assessment instruments (skills) also can also be seen in table 4. The quantitative psychomotor assessment had 18 items filled by both assessment validators. The result showed that the assessment of the psychomotor domain was very feasible of 88.89% and 95.56%. While the qualitative data in the form of comments and suggestions from the two validators for the improvement of the products produced were as follows: (1) try to make the psychomotor elements to be more clear and easier to understand and measure;

Table 3.  
The Distinguishing Criteria

No	Percentage	Information
1.	0,40 An up	<i>Very good items</i>
2.	0,30 – 0,39	<i>Reasonably good</i>
3.	0,20 – 0,29	<i>Marginal items</i>
4.	Below – 0.19	<i>Poor items</i>

(Source: Arifin, 2016: 271)

(2) the grid of psychomotor instruments in the work result aspect must be more detail by adding indicators; (3) the aspect of time must be clear, for example the length of work is 1 day, 2 days or more; (4) the time aspect must be adjusted to the level of difficulty of the task given.

Then table 4 also shows the results of 2 material validators in looking at the feasibility of material / content on the cognitive aspects assessment. There were 12 items of cognitive assessment instruments from the feasibility of material, the quantitative results from the two validators were 100% and 85%. In other words, the cognitive assessment instrument in terms of material feasibility was very feasible. Qualitatively, there were also suggestions for improving the content of the material as follows: (1) material in the part of the business component was still not suitable; (2) further explanation was needed from each sub-chapter; (3) the images referring to the examples were still lacking; (4) need to add a chart of the business proposal idea discovery.

Further, the two material validators also gave an assessment of psychomotor assessment material (skill). The validation of psychomotor assessment with 12 assessment items assessed by both validators was very feasible of 91, 67% and 100%. While the suggestions given related to psychomotor assessment material were as follows (1) students worksheets should be completed with the steps that must be done by students and the terms and conditions of proposal writing; (2) the assessment indicators about attitudes still needed to be improved.

Above all, the results of the validation by the four validators were used as a reference and suggestion to improve authentic assessment products before being tested. The following templates are from products that were produced before and after being validated.

After Revision, the suggestions and comments on psychomotor assessment instrument by expert validators which were in the form of practical steps on student worksheets should be sorted according to the Performance Observation Sheet. Before doing the validation, the practical steps on Students Worksheets (LKS) were started from the practice instructions, tools & materials, and practical steps, while after revision, the terms and conditions must be added. As a result, the Student Worksheets consisted of practice instructions, tools & materials, practical steps, and writing terms and conditions.

Table 4.  
The Results of the Quantitative Data of Performance Assessment-Based Authentic Instruments

Validators	Validation Aspects	Validation Score Percentages (%)	Criteria
Assessment	Cognitive Assessment Instrument	92%	Very Valid
	Cognitive Assessment Instrument	94.67%	Very Valid
	Psychomotor Assessment Instrument	88.89%	Very Valid
	Psychomotor Assessment Instrument	95.56%	Very Valid
Material/Content	Cognitive Aspect Material	100%	Very Valid
	Cognitive Aspect Material	85.45%	Very Valid
	Psychomotor Aspect Material	100%	Very Valid
	Psychomotor Aspect Material	91.67%	Very Valid



From the content validation data above, it showed that the authentic assessment instrument developed had very decent criteria which included the appearance, content, completeness and language used in the assessment instrument. Afterwards, it can be used in limited trials. The limited trial data of this research and development came from the trial subjects (users). The users of performance assessment-based authentic assessment instruments developed were teachers in Business plan subject and the students. The data from the the teachers were used to determine the feasibility of authentic assessment products in the form of Student Worksheets in psychomotor assessment. While students data were used to determine the readability of the instrument in the form of Student Worksheets. A limited trial of psychomotor assessment was carried out on 12 students of X grade Marketing class of SMK PGRI 2 Malang.

Besides, the limited trial of multiple-choice of cognitive questions was given to 30 students

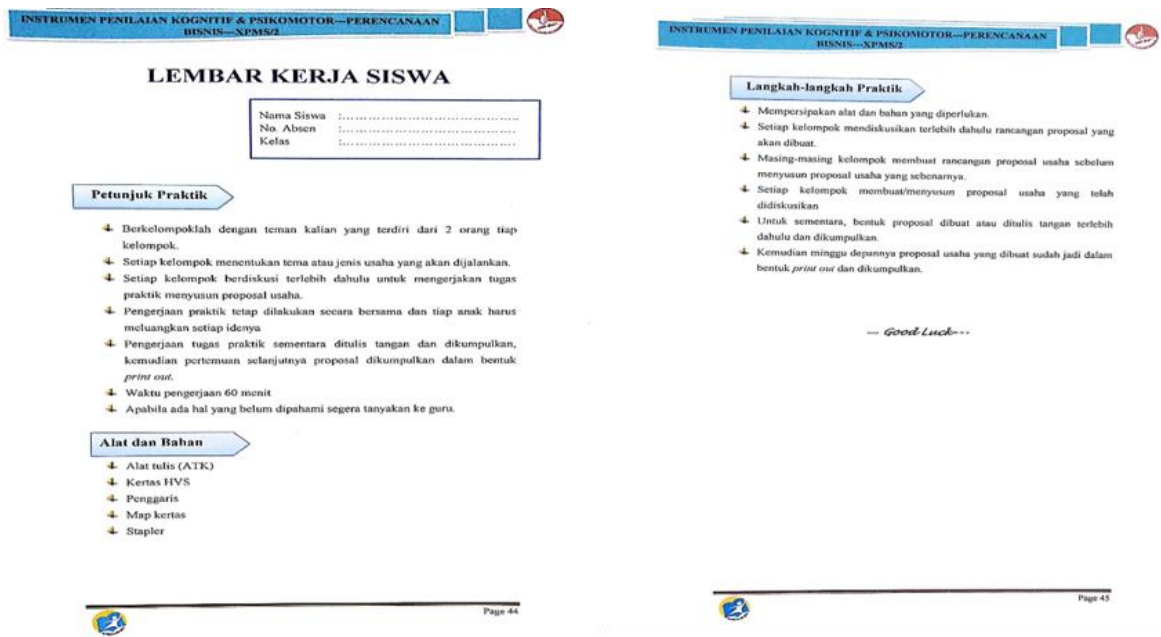


Figure 1. The Assessment Instruments

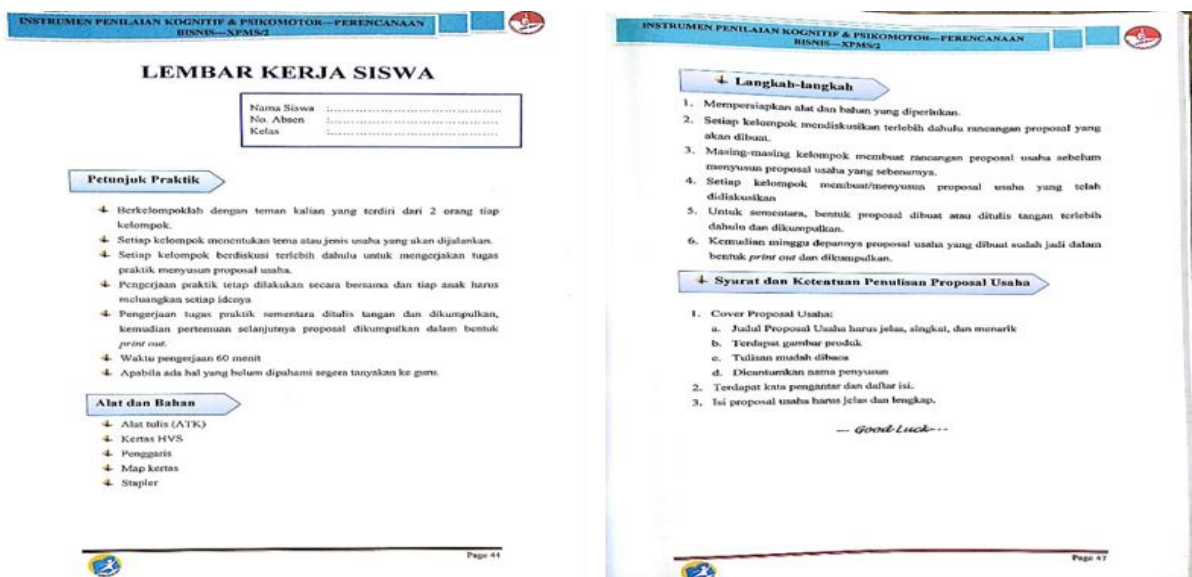


Figure 2. Before Revision

of X grade of Marketing class of SMK PGRI 2 Malang. The test was carried out in order to determine the level of difficulty and the discrimination power level. The following is the difficulty level calculation result and the discrimination power level.

The results of the teacher's response to performance assessment-based authentic assessment instruments after a limited trial showed very good criteria with a percentage of 94.28%. It meant that the assessment instruments were very well used in the learning process in the classroom in terms of linguistic aspects, ease of use, systematic clarity, feasibility of content, learning activities and the implementation of classroom learning. In addition, for the students' readability test, it showed an average result of 86.4% with very good criteria. It meant that students has understood the questions in the performance in terms of feasibility of the content, language and appearance of the performance questions.

Whereas, to measure the quality of the question, the analysis the level of difficulty and the discrimination power level was conducted. The results of the analysis can be seen in the following table 6.

To give the meaning of the difficulty level of the question, the researchers used the percentage reference  $\leq 27\%$  including the category of easy questions, then the percentage of 28% -72% included the medium questions, and the percentage  $\geq 73\%$  included into difficult questions. Based on the above data, it was obtained the difficulty level calculation result of the questions from 25 multiple choice questions that 12 questions were categorized as easy questions, 11 questions were medium and 2 questions were difficult. Briefly, the objective questions already had a balanced proportion of questions and could be used by the teacher as an assessment instrument, but in the future the teacher must be more observant in making questions so that they will be categorized as good.

For the index criteria of discrimination power of questions, the researchers used the reference that if the magnitude of the difference of  $\geq 0.40$ , it was included into the category of very good items, 0.30-0.39 included into the resonably good category, 0.20-0.29 included into the mar-

Table 5.  
The Quantitative Data of Limited Trial Results of Performance-Based Authentic Assessment

Users	Subjects	Validation Score Percentages (%)	Averages (%)	Criteria
Teacher	Business Plan Teacher	94.28	94.28%	Very good
Student	Student 1	76.8	86.4%	Very good
	Student 2	91.5		
	Student 3	95		
	Student 4	91.8		
	Student 5	82.8		
	Student 6	88.5		
	Student 7	90.7		
	Student 8	90.2		
	Student 9	88.6		
	Student 10	80.2		
	Student 11	78.2		
	Student 12	82.5		

ginal items category, and 0,20-0,19 included into the poor items category. Based on the analysis of the table above, it indicated that the discrimination power level of 25 multiple choice questions were: 6 questions were categorized as very good, 2 questions were good, 1 question was good enough, and 16 questions were bad. In other words, the 16 questions which were categorized as bad obviously could not be used by the teacher as an assessment instruments since they could not be used to distinguish the level of students' abilities. However, 9 valid questions already had a good discrimination power and could be used to distinguish the level of students' ability to master competencies. Therefore, the teacher must be more careful to make a question so that the problem can be categorized as high discrimination power level

The products of this research and development were in the form of performance assessment-based authentic assessment on Business plan subjects which are valid and feasible to use. This performance assessment-based authentic assessment provided an actual assessment be-

Table 6  
The Result of the Difficulty Level of Multiple Choice Questions

Question Number	Difficulty Level	Interpretation
1	12.5%	Easy
2	25%	Easy
3	100%	Difficult
4	6.25%	Easy
5	6.25%	Easy
6	25%	Easy
7	56.25%	Medium
8	50%	Medium
9	0%	Easy
10	31.25%	Medium
11	100%	Difficult
12	6.25%	Easy
13	31.25%	Medium
Question Number	Difficulty Level	Interpretation
14	25%	Easy
15	62.5%	Medium
16	31.25%	Medium
17	6.25%	Easy
18	43.75%	Medium
19	6.25%	Easy
20	0%	Easy
21	18.75%	Easy
22	43.75%	Medium
23	31.25%	Medium
24	50%	Medium
25	31.25%	Medium

cause it was equipped with instruments with test assessment instruments in the form of questions that must be completed and non-tests in the form of performance assessment assessment sheets were used to assess student performance when practicing learning materials.

The development of assessment product was limited to cognitive and psychomotor assessment. The development of authentic assessments included assessment instrument in the form of tests and non-tests of knowledge products which were equipped with Student Worksheets (LKS) along with psychomotor assessment instrument. The knowledge assessment instrument was in the form of printed instrument including test instruments, namely multiple choice questions and descriptions along with the answer keys which were used to assess students' knowledge. For more, the skill assessment instruments developed were in form of a practical assessment instrument consisting of two parts, namely for students and for teachers. The instrument for students was in the form of an explanation sheet of practical assignments that contained the learning instructions and work steps, while the instruments for teachers were equipped with scoring criteria, performance observation sheets. The instruments for skills assessment were in the form of practice compiling and making business proposals.

The developed knowledge assessment instruments (cognitive) were in the form of print-based instruments. The parts of the developed instrument included: (a) a summary of the materi-

Table 7 .  
The Result of Discrimination Power Level in Multiple Choice Questions

<b>Number of Question</b>	<b>The Number of Discrimination Power</b>	<b>Category</b>
1	0.25	<i>Marginal items</i>
2	0.5	<i>Poor items</i>
3	0	<i>Poor items</i>
4	0.12	<i>Poor items</i>
5	0.12	<i>Poor items</i>
6	0.5	<i>Poor items</i>
7	0.37	<i>Reasonably good</i>
8	0.5	<i>Poor items</i>
9	0	<i>Poor item</i>
10	0.37	<i>Reasonably good</i>
11	0	<i>Poor items</i>
12	0.12	<i>Poor items</i>
13	0.62	<i>Very good items</i>
<b>Number of Question</b>	<b>The Number of Discrimination Power</b>	<b>Category</b>
14	0.5	<i>Poor items</i>
15	0.5	<i>Poor items</i>
16	0.62	<i>Very good items</i>
17	0.12	<i>Poor items</i>
18	0.87	<i>Very good items</i>
19	0.12	<i>Poor items</i>
20	0	<i>Poor items</i>
21	-0.12	<i>Poor items</i>
22	0.87	<i>Very good items</i>
23	0.62	<i>Very good items</i>
24	-0.5	<i>Poor items</i>
25	0.62	<i>Very good items</i>

al, (b) the usage and cognitive instrument assessment instruction, (d) the grid of multiple choice questions and descriptions, and (e) the questions of knowledge and answer keys. While the skills assessment instrument (psychomotor) was developed in the form of a printed instrument. The parts developed included: (a) usage instruction, (b) assessment instruction, (c) grids of psychomotor assessment instrument, (d) student worksheets, (e) observation sheets, and (f) performance evaluation criteria.

This assessment was considered feasible in learning, especially in the basic competencies of implementing procedures for making and preparing business proposals because the assessment of cognitive and psychomotor aspects was applied in real time during the learning process. Apparently, the results of developing authentic assessment products are relevant to the theory by Mueller (2015) that in developing authentic assessment instruments, it includes: (1) standard determination; (b) determination of academic assignments; (3) compile criteria; and (4) making assessment rubrics. The stages in the theory had underpinned this research and development.

The valid and feasible performance assessment-based authentic assessment instruments which were produced in this study are relevant to several researches. First, Arifin (2013: 180) argues that performance assessment is a valuation technique used to determine the level of mastery of students' skills through tests and assignments. In line with that, Widoyoko (2014: 74) explains that there are several things that must be considered when setting standards for good and correct performance assessment, namely: validity, agreement/approval by students, realistic, and objectivity.

Performance-based assessment is very important and will assess the actual competency of students from both cognitive and psychomotor aspects. The results of this study are supported by previous research conducted by Marhaeni and Artini (2009) that performance tasks contain topics, task standards, task descriptions, and task completion conditions in which a set of performance tasks is valid in the expert trial process. Saputra, et al. (2017) suggest that the performance assessment-based authentic assessment instrument on productive marketing learning in Vocational High School shows 100% content and construct validation of 97.5%, with valid and feasible criteria after going through trials. Again, several researches conducted by Sundari (2014); Yuliana and Arif (2015); Khotimah, et al (2017); Sauma, et al (2017); Rosita and Rahayu (2018) found that the performance assessment instruments developed successfully met valid, reliable, and feasible to use criteria.

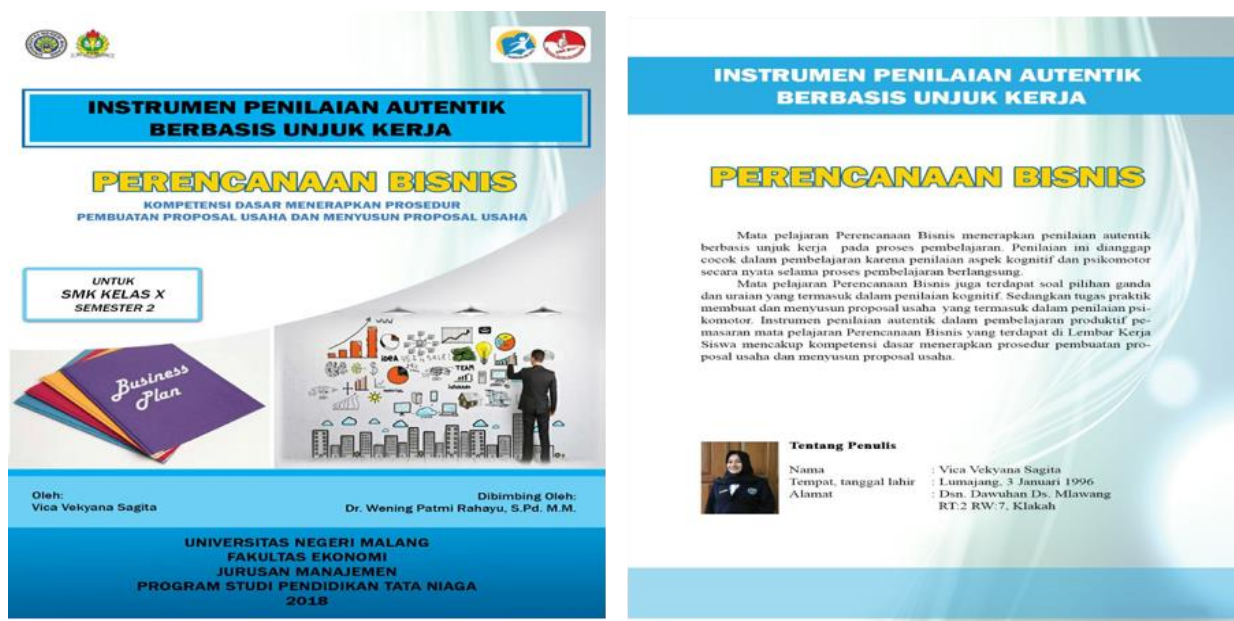


Figure 3. Front and Back Cover Display

The results of the assessment instruments were highly needed by the teacher, especially the assessment on psychomotor aspects that provided benefits to be a guideline in developing assessment instruments in productive subjects in the Vocational School.

## CONCLUSIONS AND SUGGESTION

Based on the research and development that had been carried out, there are several conclusion that can be drawn: (1) this research and development produces performance assessment-based authentic assessment instruments in Basic Competencies Business plan Subject by applying procedures for making and preparing business proposal for Vocational High School students (Vocational School) on even semester of X grade of valid and proper Marketing class. (2) The authentic assessment instruments developed consist of cognitive assessment instruments in the form of multiple choice objective questions and psychomotor assessment instruments in the form of performance observation sheets accompanied by performance assessment rubrics to assess Student Worksheets (LKS). (3) The level of feasibility of cognitive and psychomotor assessment instruments after assessment and material validation shows very valid criteria. (4) The teacher's response to the product development assessment and student readability test on Student Worksheets (LKS) after a limited trial shows that the criteria are very valid.

Performance assessment-based authentic assessment instruments that have been developed are expected to be useful in the field of education and can help teachers to make authentic assessments in the learning process on business plan subject according to the 2013 curriculum. The results of this assessment product can be used as guidance for vocational teachers in developing rubric assessment of psychomotor/skill aspects. The following description are some suggestions regarding to the instruments that have been developed by researchers.

The product needs to be adjusted if it is used for other school because the selection of practical assignments on the skill aspects for each school is different. The many aspects which become the subjects and process assessment and require a relative long time since it is done on each student, so the next researcher is expected to determine what aspects which really need to be assessed. Consequently, there will not be too many aspects are assessed and have an assessment strategy by involving observers. Eventually, they are more focused in assessing students' skill.

The suggestions for product dissemination can be done through Productive Subject Teacher Consultations (MGMP) online business and marketing majors. Performance assessment-based authentic assessment instruments developed have met very valid and feasible criteria through an expert validation process and limited trials, as a result dissemination product needs to be done to help teachers to develop it in accordance with the material characteristics of the 2013 curriculum demands.

The research and development of performance assessment-based authentic assessment only reached the sixth stage of the development model proposed by Borg and Gall. Therefore, for further researchers, the researchers suggest to continue research and development to the stage of dissemination and implementation due to Student Worksheets (LKS) are very helpful for students in understanding the performance tasks in achieving competency of compiling business

proposals. In addition, teachers are also greatly helped by performance assessment-based authentic assessment that provides convenience in providing practical assignments for preparing business proposals for Business plan Subjects of X grade.

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