

# Construct Validity on Teaching Materials of Language Assessment based on Problem-Based Learning

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**Abstract**— This research is aimed at finding out the content and construct validity of teaching materials of language assessment course based problem-based learning (PBL) approach. The construct validity is conducted by using factor analysis and assessment percentage of teaching materials. The verification of content validity is conducted through rational judgement and expert judgement. The assessment instrument indicators of teaching materials are: the content feasibility, the presentation appropriateness with the learning approach, the conformity with didactic conditions, the conformity with the construction terms (language), and the conformity with technical requirements (graph). The analysis results show that the value of *KMO* 0,559 and all of the test called Barlett, s test of Sphericity are significant ( $\text{sig} < 0,05$ ). The charge of the assessment factor of this teaching materials is greater than 0.5 so that the assessment instrument is declared valid. The percentages of the teaching material assessment by reviewers show the value 64,375% produced by the first expert and 89,375 produced by the second expert. Besides, it is 86,875% produced by user practitioner. The values show that the teaching materials has good criteria and proper to be implemented in language assessment course based on PBL approach for students of English department.

**Keywords**--construct validity, language assessment, problem-based learning.

## I. INTRODUCTION

Materials are anything which can be used to facilitate the learning of a language. They can be linguistic, visual, auditory or kinesthetic, and they can be presented in print, through live performance or display, or on cassette, CD-ROM, DVD or the internet [1].

English teaching materials for teacher or lecturer give some advantages. First, by using teaching materials it can be responsive to the heterogeneity inherent in the classroom. A teacher can develop materials that incorporate elements of the learners' first language and culture, or at least provide opportunities for acknowledgement and use alongside. Second, in designing their own materials teachers can also make decisions about the most appropriate organizing principle or focus for the materials and the activities.

One of courses which is essential to be designed the teaching materials is language assessment course. According to Paul and Elder, language assessment in modern assessment offers the students critical thinking skills to stimulate and raise questions with problems and explain

appropriately [2]. Therefore, in learning language, students' activeness needs to be increased to think critically in evaluating education problems. Language assessment course in English Department uses to give the teachers with some practical overview for evaluating and designing innovative assessment.

Ideally, the implementation of assessment in language learning should be comprehensive. An English teacher should design the assessment which includes four skills of English learning. They are Listening, Speaking, Reading, and Writing. The English learning assessment desperately needs an appraisal that is in line with reality rather than using only conventional assessments, assessments that measure only cognitive levels. This assessment incorporates several assessments that can be used in English learning, namely life skill based authentic assessment, alternative assessment and assessment for learning. But in reality, some of English teachers get obstacles in carrying out language assessment. Therefore, the teachers should use an innovative strategy to develop students' critical thinking named problem based learning.

Problem Based Learning (PBL) is one of model in learning process (pedagogical) that has a part to act both as supportive change agents working in collaboration of students and individual to use their skill using creativity to find solutions to practical problems. Questioning issues and finding solutions using creativity are also challenging who teach and transfer PBL based curriculum, and poses some fundamental questions [3].

Ackay states that "PBL includes three main characteristics: (1) engages students as stakeholders in a problem situation; (2) organizes curriculum around this holistic problem, enabling student learning in relevant and connected ways; (3) creates a learning environment in which teachers coach student thinking and guide student inquiry, facilitating deeper levels of understanding" [4].

From the descriptions above, it can be concluded that teaching materials of Language assessment course based on problem based learning is essential to be conducted by lecturers or teachers.

There are many requirements that should be fulfilled in designing teaching materials. Based on Borg & Gall, there are some stages in designing teaching materials of language assessment. They are: (1) preliminary study, (2) developing the initial product, (3) conducting product

validation, (4) revising the product, (5) testing limited trials, (6) revision to produce the final product and (7) disseminate the product [5].

In this study, the writer tries to find out the content and construct validity of teaching materials of Language Assessment course based problem-based learning (PBL) approach. The construct validity is conducted by using factor analysis and assessment percentage of teaching materials. The verification of content validity is conducted through rational judgment and expert judgment.

## II. RESEARCH METHOD

Developing of this teaching materials consists of some stages. They are (1) preliminary research, (2) compiling teaching materials, (3) validating by experts, (4) revising teaching materials, (5) producing teaching materials. The validation stage of this research is conducted by two expert validations namely material experts in English and assessment fields. Data collection techniques at this validation stage are instruments of expert assessment and review results of teaching materials are notes, suggestions and also comments based on expert assessment results. Data analysis used in this study is qualitative and quantitative descriptive analysis. The qualitative descriptive analysis is used to analyze data such as notes, suggestions, or comments based on the assessment results in the contents of teaching materials. For quantitative analysis, it uses the score of expert validation results as well as factors from the assessment of teaching materials.

## III. FINDINGS

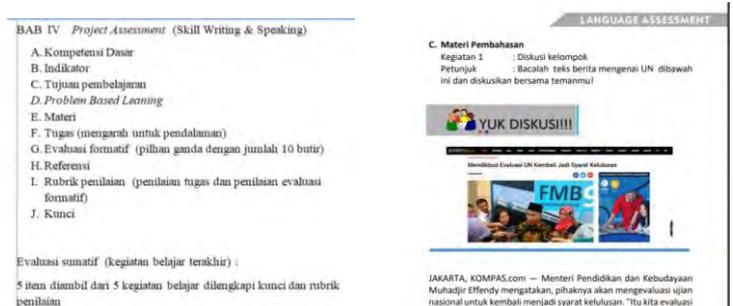
The first stage conducted in designing this teaching materials is collecting information based on students' need in Language Assessment course. The methods used are doing interview and giving questionnaire. From the results of the preliminary research test, there were findings that the teaching materials that had been used by lecturers were still limited. The limitations are it has not maximally fulfilled the students' characteristics and it is unable to foster the ability to think critically so that they faced difficulties in dealing with real problems.

Students need additional references by referring to problem finding because this method is one of the learning that refers to constructivist paradigm. Learning through problem solving begins with the presentation of problems taken from the environment around students in accordance with the material being taught. The presentation of this problem can be solved according to the experience of students in their lives.

The second stage is compiling teaching materials of language assessment based on problem based learning. It had been compiled in focus group discussion (FGD) with research partners in order to produce the product which has a novelty than others. This book has problem-based characteristic so in the first learning activity of this book is always started with problem description. The stages of learning activities are: 1) understanding and explaining the problem, (2) discussing the problem by finding facts and

planning problem solving by discussing with other students, (3) presenting ideas, at this stage students can develop speaking competence and can broaden their knowledge with each understanding, (4) independent learning, this teaching material provides information to reflect the problem findings that have been discussed, (5) deepening the materials by solving problems related to the discussion topic.

The third stage of this research is experts validation by English and assessment validators. In this stage, the experts review the teaching materials included contents, construct, and language. This language assessment teaching materials consists of the concept of learning evaluation, development of test and non-test instruments, and instrument quality analysis as well. Each learning activity is presented with the presentation of problems, basic competencies, indicators and learning objectives so that students are focused on learning this teaching material. The following shows the language assessment teaching material in Figure 1.



**Figure 1. Display of teaching materials based on PBL**

In figure 2 below, it shows comments from reviewer that is about the learning objectives are more directed to problem based learning. Problem based learning by presenting problems can integrate theory with experience or knowledge. According to Fakhriyah, Sumaji, & Roysa, they confirm that the problem based learning model is known as problem-based learning by using real problems from environmental experience to acquire knowledge and concepts through critical thinking and problem solving [6]. This teaching material is as an alternative companion reference for independent and creative learning. It is also making students not trapped in monotonous thinking in solving problems [7].

In figure 2 below there are also comments from reviewers related to the structure used in determining the expected learning outcome. Language assessment is teaching materials for assessing language learning so that discussions and examples are adapted to examples in learning English. In improving language learning and finding out the competencies of students in a real way are by creating a skill assessment rubric and activeness so that it can get the real assessment. The compilation of the assessment rubric is important for educators in finding out the integration of cognitive, affective and psychomotor assessments [8].

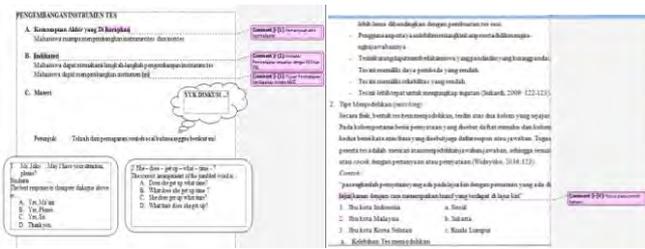


Figure 2. Comments from reviewers

In the learning activities named developing non-test instruments focused on the topic of performance assessment discussion, it is better to use the performance text such as: speech, book report or drama video. Comments from reviewers stated that this performance assessment was more directed at English language skills. Performance assessment activities should give learners' opportunities to show their abilities about what they know and do.

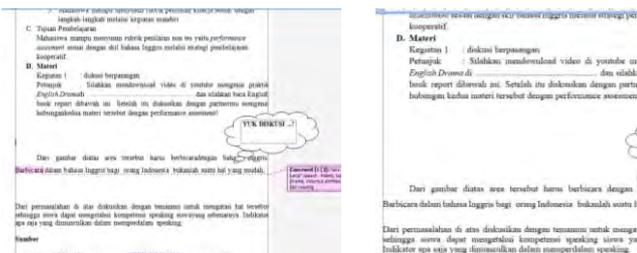


Figure 3. Displaying Teaching Materials Before Review And After Review

The next stage is empirical study of teaching materials using quantitative descriptive analysis from the results of expert assessment scores. Validity of teaching materials can be known by empirical validation with several assessment indicators of experts.

Table 1. Result of content validation

No	Item	Validation Value	Average	Description
1	Content	99	4,125	Valid
2	Suitability of Presentation with Learning Approach (Problem Based Learning)	111	4,111	Valid
3	Suitability of Didactic Terms	60	4	Valid
4	Suitability in Linguist	58	3,867	Valid
5	Suitability of Technical Requirements (Graph)	57	3,8	Valid

Based on the results of the data from each assessment the validators showed that the feasibility of the content, compatibility with the learning approach in this case problem based learning, suitability with didactic, linguistic and display of teaching materials had valid criteria. The overall results of the expert assessment are listed in Table 2 below.

Table 2. Resume of Assessment Results of Experts Validation

Validator	Scores Total	Criteria Presentage	
Validator 1	103	64,37	Quite good
Validator 2	143	89,37	Good
User of teaching materials	139	86,37	Good
Average rating	80,21%		

Based on expert validation it can be concluded that the average rating is 80.21%. It shows that the product eligibility is **good**. This assessment includes several indicators that support validity of teaching materials, namely: material suitability, learning needs, material coverage, teaching material suitability, suitability with problem based learning, student self-development, suitability with language use and sentences. The development of this teaching material needs to be improved based on suggestions and comments from the validators. This teaching material discusses the assessment of English learning in real terms, including English language competence, namely writing, reading, speaking and listening.

Moreover it is also conducted a verification of content validity by using rational judgment and expert judgment. This analysis is to find out the content validity seen from the assessment indicators of teaching materials including: content feasibility, suitability of presentation with learning approach, suitability with didactic requirements, suitability with construction requirements (linguistic), conformity with technical requirements (graph). Validation results are through experts and practitioners. This analysis uses confirmatory factor analysis (CFA) analysis. The results show the KMO score is 0.559 and all Bartlett tests, s test of Sphericity is significant (sig <0.05). The factor content of the teaching material assessment is greater than 0.5 so that the assessment instruments are **valid**.

This teaching materials can help students in learning as a reference in independent learning. Assessment of language learning is very important for prospective educators in determining students' competencies significantly by compiling an assessment rubric. This teaching material needs to be developed to familiarize students with critical thinking that focused on workplace. The ability of thinking critically will help students solve various problems here and after.

#### IV. DISCUSSION

Based on the results of the preliminary research stage, there are findings that references used by students are still limited where teaching materials had not maximally fulfilled the needs of students to develop rational and critical thinking skills. Students in this language assessment course learn about the assessment of learning English by measuring reading, writing, speaking and listening competencies. The interview results show that it needs for references or handout that lead to problem solving in improving critical thinking skills. Learning by improving thoughts, it will

develop students' knowledge. Learning using problem based learning is one approach that encourages students to work in teams, develop creativity and find new solutions and also discuss to be able to generate new ideas or thoughts [3].

This teaching materials is equipped with several parts of learning activities related to language learning assessments. They are: learning evaluation, language assessment, development of test and non-test instruments and also instrument quality. Each section of learning activities includes several learning instructions, learning competencies, goals, indicators of learning, presentation of problems, subject matter, deepening of the material with questions and assessments. Teaching materials that are developed based on the learning criteria comprehensively so it shows high flexibility based on analysis of curriculum needs, student conditions, and needs in the learning process [9]. With the course that focuses on assessment, educators or lecturer are ready to assess students comprehensively including cognitive, affective and psychomotor assessment with the right learning process and methods [10].

This teaching material based on problem based learning is showed at the beginning of each learning activity. Teaching materials that refer to problem solving have several other criteria: (a) focus on questions, (b) analysis of ideas, (c) process of discussion, (d) maintain the truth of the concept, (e) observe and consider the results of observations, (f) make deduction and consider the results of deduction, (g) make induction and consider the results of induction, (h) give decisions, (i) identify assumptions, and (h) determine an action [11]. This learning is very maximal when applied to students who have a broader and creative thinking. Affective competencies that arise in teaching materials based on problem based learning can measure social skills in the form of communication, social responsibility and teamwork [12].

This is confirmed in the study conducted by Ghufron that there are some characteristics of problem based learning. They are: problem solving skills, fostering independent learning, increasing trust and motivation, responsibility, sharing and exchanging ideas between friends, making students more active in learning, exploring learning resources for solve problems in the learning process [13]. With the selection of teaching materials in learning will provide good facilities and can know the expected learning competencies. The process of learning based on problem based learning includes solving problems in groups, developing competency in speaking, working in teams and producing problem solving with ideas of critical thinking.

The construct validity of language assessment teaching materials includes theoretical validity and empirical validity. For theoretical validity, it includes material analysis, construction and language in teaching materials. The analysis of this teaching material is conducted by experts' validators. The results of their analysis are suggestions and comments for the improvement of teaching materials. The results of comments and suggestions from reviewers are as an input for improving teaching materials which is more emphasized at grammar and sentences; construction is more directed at learning English and display in teaching materials. Construct validity is a validity that shows how far the theory is examined by

expert judgment. Validity testing needs to be carried out in line with the development of the measured attributes, based on the theory construction and really want to be measured by a predetermined concept.

The results of validation that indicators of teaching materials based on problem based learning show valid criteria. The validation of teaching materials should has certain criteria. The criterion of a valid product is if it can reflect knowledge (state of the art knowledge). It is called a construct validity [14]. From the results of construct validity, This teaching material is developed in accordance with the requirements and conditions of teaching materials. The content of teaching materials is also developed in accordance with the demands of the problem based learning.

The teaching materials of language assessment based on problem based learning are in accordance with the basic competencies of the course, using the right spelling and sentences, problem presentation in each learning activity, critical thinking in learning discussion activities, and an attractive appearance in accordance with student needs. This teaching material is as references of the courses. It can be a source of independent learning, creative in developing authentic assessment instruments and can solve problems in education.

## V. CONCLUSION

Based on the research results of developing language assessment teaching materials on problem based learning showed that it has valid criteria based on experts assessment conducted by rational and expert judgement. Indicators in the assessment instrument of this teaching material are: content expediency, suitability of presentation with learning approach, suitability with didactic requirements, and suitability of construction requirements (linguistic), and also technical requirements (graph). The results of the analysis showed that the KMO price is 0.559 and all Bartlett's test of Sphericity is significant ( $\text{sig} < 0.05$ ). The charge of the assessment factor of this teaching materials is greater than 0.5 so that the assessment instrument is declared valid. The percentage of assessment of language assessment teaching materials on problem based learning by reviewers showed a score of 64.375% by experts 1 and 89.375% by experts 2 and also 86.875% by user practitioners. This value indicates that the teaching material has good and proper criteria to be implemented in the language assessment learning process for students of English education. This teaching material is in accordance with the provisions of the problem based learning model. It can reflect knowledge and it is suitable to be implemented in learning.

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