

Development Of Social Studies Learning Instrument Based On Two Dimensional Bloom Taxonomy On Primary School

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Abstract: Assessment of learning outcomes requires an assessment instrument to measure the level of student understanding of the learning process. This research was conducted to develop an instrument for assessing social studies learning outcomes based on two-dimensional Bloom Taxonomy in elementary schools. The formulation of the problem in this study is how the process and results of the development of social studies learning outcomes assessment instruments theme 3 and 4 which are suitable for cognitive levels C4, C5, and C6 based on two-dimensional Bloom Taxonomy. The purpose of this development research is to describe and develop an instrument for assessing social studies learning outcomes themes 3 and 4 that are suitable for cognitive levels C4, C5, and C6 based on the two-dimensional Bloom Taxonomy. The results of the analysis of the validity test of all items have met the value of $r_{count} > r_{tabel}$. The reliability test using the Alpha-Cornbach method obtained the results of the A part of the reliability value $\alpha = 0.791$, the B part of the reliability value $\alpha = 0.602$, and the C part of the question the reliability value of $\alpha = 0.621$. Analysis of the difficulty level of the questions is known to be 25% difficult, 15% moderate, and 60% easy. The analysis of the difference in power obtained the results of 3 good category questions, 5 fair category questions, 11 weak category questions, and 1 very weak category questions. Based on this, it can be concluded that the developed social studies questions are valid and suitable for use as an instrument for assessing social studies learning outcomes.

Keywords: assessment of learning outcomes, two-dimensional Bloom's Taxonomy

1. INTRODUCTION

The process of assessing learning outcomes is one thing that cannot be separated from learning. Permendikbud Number 23 of 2016 Concerning Education Assessment Standards, states that the assessment of learning outcomes by educators is the process of gathering information / evidence about the learning outcomes of students in the competence of spiritual attitudes and social attitudes, knowledge competencies, and skills competencies carried out in a planned and systematic manner, and after the learning process. Assessment of learning outcomes is needed by teachers to determine student achievement results during the learning process. assessment of learning outcomes is also needed as a material consideration for teachers to compile further learning.

The learning outcome assessment process requires a learning outcome assessment instrument as a tool to measure the level of achievement of student understanding after the learning process. One form of learning outcome assessment instrument that can be made by the teacher is a paper and pencil test. Teachers can find out cognitive development and student achievement in understanding learning material through the questions given to students.

The learning outcome assessment instrument must be prepared based on the existing Graduate Competency Standards. Permendikbud Number 21 of 2016 concerning content standards for primary and secondary education states that Bloom's Taxonomy which was introduced by Anderson and Krathwhol in 2001 as the revised Bloom Taxonomy serves as a guideline in compiling Graduate Competency Standards. Bloom's Taxonomy divides the achievement of learning outcomes into 3 major domains, namely the cognitive, affective and psychomotor domains.

The revised Bloom Taxonomy or also known as the two-dimensional Bloom's Taxonomy is no longer focused on just one cognitive dimension, but consists of two dimensions, namely the cognitive process dimension and the knowledge dimension. The cognitive process dimension consists of six levels in the form of verbs, namely remembering (C1), understanding (C2), applying (C3), analyzing (C4), evaluating (C5), and creating (C6). The dimension of knowledge consists of four levels in the form of nouns, namely factual knowledge, procedural knowledge, conceptual knowledge, and metacognitive knowledge. Bloom's Taxonomy also classifies thinking skills into two parts, namely LOTS (Lower Order Thinking Skills) and HOTS (Higher Order Thinking Skills). Class V student learning in elementary schools is basically already based on the HOTS category, thus an assessment of learning outcomes with the HOTS category is also very necessary. In line with this, teachers are also required to compile HOTS based learning outcomes assessment which aims to determine student achievement in learning and improve the quality of student graduates.

Based on the description above, research was carried out to develop an instrument for assessing learning outcomes based on Bloom's Taxonomy. This research focuses on social studies theme 3 and 4 grade V elementary school subjects. The formulation of the problems in this study are: (1) what is the process of developing the social studies learning outcomes assessment instrument themes 3 and 4 that are appropriate for cognitive levels C4, C5, and C6 based on the two-dimensional Bloom Taxonomy ?; and (2) what are the results of the development of social studies learning outcomes assessment instruments theme 3

and 4 that are appropriate for cognitive levels C4, C5, and C6 based on the two-dimensional Bloom Taxonomy? Based on the formulation of the problem, the objectives of this research and development are: (1) to describe the process of developing social studies learning outcomes assessment instruments on themes 3 and 4 which are suitable for cognitive levels C4, C5, and C6 based on the two-dimensional Bloom Taxonomy; and (2) developing social studies learning outcomes assessment instruments on themes 3 and 4 that are appropriate for cognitive levels C4, C5, and C6 based on the two-dimensional Bloom Taxonomy.

2. DISCUSSION

2.1 Learning Outcomes Assessment Instruments

The learning outcome assessment instrument is a measuring tool prepared by the teacher in the form of tasks that must be completed by students to measure the level of student understanding and mastery of the subject matter or the objectives of the learning. The learning outcome assessment instrument must be structured as well as possible in order to represent the entire context to be assessed, so that the results obtained are valid and worthy of being used as evaluation material for teachers. Ebel in Susetyo (2015) says "The preparation of test items can be done by taking a representative sample of the material that has been taught". Based on this statement, it can be seen the importance of preparing the preparation of learning outcome assessment instruments that will be given to students. Several steps can be taken in the preparation of learning outcome assessment instruments according to Sulistiasih (2018), namely: (1) setting test objectives, (2) curriculum analysis, (3) analyzing books, modules, or other learning resources, (4) drafting grids grid, (5) determining indicators or learning objectives, (6) writing test items, (7) examining test items, (8) revising or correcting test items, (9) limited test reproduction, (10) test trials, (11)) analysis of test items, (12) revision of items, and (13) preparation of tests (finalization). A good test is a test that can represent student knowledge through the questions given.

One form of learning outcome assessment instrument that can be used by teachers is a written test (paper and pencil test). Written tests can also be divided into two types, namely objective tests and essay tests. The objective test is a test where each problem is accompanied by several answer choices, while the essay test is a test that requires students to provide explanations, opinions, or interpretations in answering them. According to Sudijono in (Susetyo, 2015) "test in the form of description is a test of learning outcomes in the form of questions or commands that require answers in the form of a fairly long description or exposure".

2.2 Curriculum for Social Studies in Elementary Schools

Social studies learning is an integrated study of social sciences and humanities that uses social phenomena in society as a study material. Social studies education in the 2013 curriculum for grade V elementary school students is integrated into several themes but has basic competencies that are independent.

2.3 Two-Dimensional Bloom's Taxonomy

Bloom's Taxonomy divides educational goals into 3 major domains or domains (Arikunto, 2011), namely: (1) cognitive domain, which includes factual knowledge, procedural patterns, concepts that allow the development of intellectual skills; (2) the affective domain, which relates to the development of attitudes, values, feelings and emotions; and (3) the psychomotor domain, which deals with motor skills activities. Initially, Bloom's Taxonomy in the cognitive realm only consisted of one dimension of knowledge which was divided into six levels, namely: knowledge (C1), understanding (C2), application (C3), analysis (C4), synthesis (C5), and evaluation (C6). As knowledge develops, in 2001 Anderson and Krathwhol introduced the revised Bloom's Taxonomy or also known as the two-dimensional Bloom's Taxonomy through their book *A Taxonomy for Learning, Teaching, and Assesing: A Revision of Bloom's Taxonomy of Educational Objectives*. This change is done by separating the dimensions of knowledge and dimensions of cognitive processes.

The separation between the dimensions of knowledge and the dimensions of cognitive processes is carried out for several reasons such as differences between the dimensions of knowledge and cognitive processes. Knowledge is a noun, while cognitive processes are verbs. Changes to Bloom's Taxonomy were made to suit educational goals. Educational goals show that students can do something (verb) with something (noun). The cognitive process dimension is a verb which consists of remembering (C1), understanding (C2), applying (C3) analyzing, (C4) evaluating (C5), and creating (C6). The dimension of knowledge is a noun consisting of factual knowledge, conceptual knowledge, procedural knowledge and metacognitive knowledge.

2.4 Data Collection Methods

This research is a type of development research using the model proposed by Borg and Gall. Borg and Gall (in Masyhud, 2015) state that research and development is a research method used to develop or validate products used in education. The product developed in this study was an instrument for assessing social studies learning outcomes in themes 3 and 4 based on two-dimensional Bloom Taxonomy in elementary schools. The subjects of this study were 31 students in grade V SDN Jember Lor 04. The research was conducted in the odd semester of the 2020/2021 school year.

This study carried out nine of the ten stages of development research proposed by Borg and Gall. The modification of the research and development stages was carried out because of the limited time and cost in carrying out the research. The nine

stages of development research are (Rachman, 2015): (1) the needs analysis stage; (2) the planning stage; (3) the product design stage; (4) validation stage; (5) revision stage; (6) initial product trial stage; (7) initial product revision stage; (8) the final product trial stage; and (9) the final product revision stage.

The data collection instrument method was carried out through interviews, providing validator sheets to the validators and carrying out tests. Interviews were conducted with class V teachers at SDN Jember Lor 04 to determine the initial conditions of the learning process and to assess learning outcomes in class. The validation sheet is used to assess the validity and feasibility of the learning outcome assessment instrument product developed in this study. Validation was carried out by 3 expert validators consisting of 2 lecturers of the Elementary School Teacher Education Program at the University of Jember and one class V teacher at SDN Jember Lor 04. The test used consisted of multiple choice questions and descriptions according to the students' cognitive abilities. The test was used to measure the students' abilities towards social studies subject matter 3 and 4. The test was conducted on 31 students of grade V SDN Jember Lor 04.

The data analysis technique was carried out by testing the validity, reliability test, distinguishing power, and the difficulty level of the items. Sudijono in (Utami, et al., 2020) states that validity is the accuracy of measuring what an item has to measure what should be measured. The formula used in measuring the validity is the Pearson product moment correlation:

$$r_{xy} = \frac{n\sum X_i Y_i - (\sum X_i)(\sum Y_i)}{\sqrt{[n\sum X_i^2 - (\sum X_i)^2][n\sum Y_i^2 - (\sum Y_i)^2]}}$$

Information :

- r = the pearson correlation coefficient
- $\sum XY$ = number of products of X and Y scores
- $\sum X$ = Total score of X
- $\sum Y$ = Total Y score
- $\sum X^2$ = Sum of squares of X score
- $\sum Y^2$ = Sum of squares of Y score
- N = Number of Participants

Items can be said to be valid if they meet the corrected Item-Total Correlation value ≥ 0.20 .

Reliability is the ability of measuring instruments to provide constant measurement results. According to (Utami, et al., 2020) the reliability test can use the Alpha-Cronbach method which is calculated by the following formula:

$$r_{11} = [n] \frac{[1 - \sum S_i^2]}{n - 1 \sum S_t^2}$$

Information :

- r_{11} = test reliability coefficient
- n = number of items
- S_i^2 = grain variance
- S_t^2 = total variance

Question items can be said to be reliable if they meet $\alpha \geq 20$, then the items can be declared reliable.

According to (Utami, et al., 2020) to measure the difficulty level of the problem (P) it can be calculated by the following formula:

$$P = \frac{B}{N}$$

Information :

- P = problem difficulty index
- B = The number of students who answered correctly
- N = total number of students

According to (Utami, et al., 2020) to measure the distinguishing power the following formula can be used:

$$\text{Difference (DB)} = \frac{KA - KB}{0,5 \times J}$$

Information :

- KA = 30% of the number of students in the top group based on the ranking of the total score who answered correctly.
- KB = 30% of the number of students in the lower group based on the ranking of the total score who answered correctly.
- J = The total number of test takers in the upper and lower groups.

Based on the research that has been carried out and the data analysis carried out, the value of the validation results obtained by expert validators is 88.2% with the very feasible category. Based on the validity test, it is known that all items meet the value of $r_{count} > r_{tabel}$, so it can be concluded that the questions are in the valid and feasible category for use. The results of the reliability test showed that the question of part A obtained the reliability value of $\alpha = 0.791$, The question of part B obtained the reliability value of $\alpha = 0.602$, The question of section C obtained the reliability value of $\alpha = 0.621$, so that the questions were included in the reliable category. The result of the analysis of the difficulty level of the questions, it can be seen that the percentage of difficult questions is 25%, the percentage of moderate questions is 15%, the percentage of easy questions is 60%. Based on the

results of the analysis of differences in power, 3 items were categorized as good, 5 items were categorized as sufficient, 11 items were categorized as weak, and 1 item was categorized as very weak.

3. CONCLUSION

The process of developing a two-dimensional Bloom Taxonomy based IPS learning outcome assessment instrument can be carried out with the Borg and Gall model with 9 stages that have been adjusted to the needs of the research, namely: (1) Needs analysis stage, (2) Planning stage, (3) Product design stage, (4) Product design validation stage, (5) Revision stage, (6) Initial product trial stage, (7) Initial product revision stage, (8) Final product trial stage, and (9) Final product revision stage. Based on the analysis of the Pearson product moment validity test, it was found that all items had met the value of $r_{count} > r_{table}$. The reliability test using the Alpha-Cornbach method obtained the results of part A questions or multiple choice questions obtained reliability value $\alpha = 0.791$, part B questions were obtained or short questions obtained reliability values $\alpha = 0.602$, and part C questions or description questions obtained reliability values $\alpha = 0.621$. Based on the analysis of the difficulty level of the questions, the learning outcome assessment instrument developed consisted of 25% difficult questions, 15% moderate questions, and 60% easy questions. Based on the results of the analysis of differences in power, 3 items were categorized as good, 5 items were categorized as sufficient, 11 items were categorized as weak, and 1 item was categorized as very weak. Based on the results of the analysis that has been carried out, it can be concluded that the social studies questions developed are valid and suitable for use as an instrument for assessing social studies learning outcomes in theme 3 and 4 in grade V elementary schools.

Suggestions from this study for teachers to provide an instrument for assessing learning outcomes in the HOTS category to students so that students' critical thinking skills can improve. For researchers, this study can be used as learning to develop instruments for assessing student learning outcomes when in the field. For other researchers, this research can be used as a reference for conducting research on the development of learning outcome assessment instruments in other subjects. In further research, the research carried out must be maximally developed in order to obtain better results.

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