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Higher Order Thinking Skill (Hots) Ability Instrument for Theme 2 (Unity in Diversity) in Class VI Elementary School

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ABSTRAK

Kurangnya fokus pada penilaian HOTS dalam sistem pendidikan dapat menyebabkan kurangnya dorongan bagi peserta didik untuk mengembangkan kemampuan berpikir kritis, analitis, dan kreatif. Penelitian ini bertujuan mengembangkan instrumen HOTS kemampuan HOTS pada siswa kelas VI SD tema 2 (Persatuan dalam Perbedaan). Pengembangan instrumen dalam penelitian ini berpedoman pada model Borg dan Gall. Instrumen HOTS yang dikembangkan berupa tes dengan bentuk essai. Sedangkan objek dalam penelitian ini yaitu kualitas butir soal. Data yang dikumpulkan dalam penelitian ini yaitu data mengenai instrumen kemampuan HOTS. Metode yang digunakan untuk mengumpulkan data dalam penelitian ini adalah metode tes. Data dianalisis dengan menggunakan uji analisis validitas isi, uji validitas butir, uji reliabilitas, uji daya beda, dan uji tingkat kesukaran. Hasil uji validitas isi yang diuji oleh lima pakar Instrumen HOTS dinyatakan relevan, rata-rata hasil uji validitas isi dinyatakan valid, rata-rata hasil uji validitas butir soal instrument dinyatakan valid, rata-rata hasil uji reliabilitas instrumen yang berada pada kriteria sangat tinggi, hasil rata-rata hasil uji daya yang berada pada kriteria daya beda baik, hasil rata-rata skor tingkat kesukaran butir soal yang berada pada kategori tingkat kesukaran tergolong sedang. Disimpulkan instrumen kemampuan HOTS pada siswa kelas VI SD tema 2 (Persatuan dalam Perbedaan) layak digunakan untuk mengukur kemampuan HOTS siswa dalam memecahkan masalah dan melatih peserta didik berpikir kreatif.

ABSTRACT

The lack of focus on HOTS assessment in the education system can lead to a lack of encouragement for students to develop critical, analytical and creative thinking skills. This research aims to develop a HOTS instrument for HOTS abilities for sixth grade elementary school students with theme 2 (Unity in Difference). The development of instruments in this research was guided by the Borg and Gall model. The HOTS instrument developed is a test in essay form. Meanwhile, the object in this research is the quality of the question items. The data collected in this research is data regarding the HOTS ability instrument. The method used to collect data in this research is the test method. Data were analyzed using content validity analysis tests, item validity tests, reliability tests, discrimination tests, and difficulty level tests. The content validity test results tested by five HOTS Instrument experts were declared relevant, the average content validity test results were declared valid, the average instrument validity test results were declared valid, the average instrument reliability test results were at very high criteria, the average results of the power test results which are in the good different power criteria, the average results of the difficulty level scores of the questions which are in the medium level category of difficulty. It was concluded that the HOTS ability instrument for sixth grade elementary school students with theme 2 (Unity in Difference) is suitable for measuring students' HOTS abilities in solving problems and training students to think creatively.

1. INTRODUCTION

The development of the world of education has changed from year to year. Along with the changes that occur, the curriculum also undergoes changes, the curriculum currently used is the 2013 curriculum, the 2013 curriculum requires students to be active, creative and think critically due to increasingly advanced educational developments (Purhanudin & Nugroho, 2021; Siswati, 2019). Students'

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thinking abilities are divided into 3 levels, namely low-level thinking abilities, medium-level thinking abilities and high-level thinking abilities (Nursa'adah & Rosa, 2016; Utami et al., 2020). Low-level abilities involve the ability to remember (C1), understand (C2), medium-level thinking abilities, namely, apply (C3), while high-level thinking abilities involve analysis and synthesis (C4), evaluating (C5), and creating and creativity. Students who have high thinking abilities can carry out the process of analyzing and evaluating a problem so as to create a solution (Nursa'adah & Rosa, 2016; Syafruddin & Pujiastuti, 2020). At elementary school level, higher order thinking skills (HOTS) are something that is taken into account to produce good and competent graduates.

The conditions of life in the 21st century is full of challenges and competition. This has an impact, among other things, on high levels of depression in addition to providing opportunities for those who have life competencies, as well as having multiliteracy which strengthens students' physical, mental and intellectual capacities. Therefore, students are required to have strong character in order to face the challenges of the 21st century (Hamriana, 2021; Kiska et al., 2023). Looking at the cognitive development of students, class VI children are at the level of development in the formal operational phase. In the formal operational phase, students are able to think systematically, develop hypotheses and develop strategic steps in solving problems. This ability to think requires children to be able to think at a higher level. Therefore, children's thinking abilities enter the realms of C4, C5, and C6 (Bujuri, 2018; Komalasari et al., 2023). From the description above, the development of an instrument consisting of questions containing elements C4, C5, C6 is in accordance with the development of students in class VI.

Higher Order Thinking Skills (HOTS) are students' thinking abilities at a higher level, which can be expanded and improved through the use of strategic learning methods, such as problem solving methods, Bloom's taxonomy, teaching that promotes reflection, and assessment processes that provide space for comprehensive evaluation (Cahyaningrum et al., 2023; Munar et al., 2022). However, in reality, the implementation of assessment in the realm of education currently still does not fully meet the standards of 21st century demands. This mismatch creates serious challenges in developing students' higher-order thinking abilities, which ultimately affects maximum achievement in responding to increasingly complex curricula. The assessments currently implemented are not yet fully capable of describing and measuring high-level thinking skills as a whole. The lack of focus on HOTS assessment in the education system can lead to a lack of encouragement for students to develop critical, analytical and creative thinking skills. As a result, even though the curriculum has been designed to create learning that focuses on developing HOTS, maximum achievement in this regard is still hampered by assessments that are not yet fully adequate (Munar et al., 2022; Suratmi et al., 2020).

The Higher Order Thinking Skills (HOTS) ability instrument for theme 2, "Unity in Diversity," in Class VI Elementary School is an urgent problem and needs further attention. Even though the concept of unity in diversity has a very important value to be taught to children at the basic education level, developing an appropriate HOTS instrument to measure understanding and application of this concept is still a challenge in itself (Hudiyono & Ilyas, 2020; Suratmi et al., 2020). A mismatch between the focus of the HOTS instrument and theme 2 material can result in evaluations that are less representative of students' higher-order thinking abilities. In the context of the theme "Unity in Diversity," which emphasizes respect for diversity and joint efforts in achieving common goals, assessment instruments must be able to reflect the extent to which students are able to apply their critical, analytical and creative thinking in dealing with situations involving differences (Cahyaningrum et al., 2023; Hudiyono & Ilyas, 2020).

Revision of the HOTS assessment instrument needs to be carried out so that it is more contextual and relevant to the reality of the themes raised. This involves aligning the learning objectives to be achieved with the assessment instruments used (Suratmi et al., 2020; Triwardhani, 2022). Inaccurate instruments can provide a limited view of the extent to which students are able to demonstrate higher-order thinking skills related to the theme. Inadequate implementation of the HOTS instrument can also have an impact on student motivation. Instruments that are not motivating can reduce students' enthusiasm for learning, especially if students do not see the relevance of higher-order thinking skills to the themes being studied (Astuti et al., 2019; Sutama et al., 2022). Therefore, special attention needs to be paid to designing assessment instruments that can create a comprehensive, challenging learning experience and empower students to think critically and creatively.

Collaboration between teachers, curriculum designers, and researchers in the field of education is very important. This collaboration can produce HOTS assessment instruments that are better and more appropriate to the characteristics and needs of students at the elementary school level (Alsalhi et al., 2021; Munar et al., 2022). In this way, the problem of the Higher Order Thinking Skills (HOTS) ability instrument for theme 2 in Class VI Elementary School can be addressed comprehensively, supporting

maximum student achievement in developing high-level thinking abilities in line with the demands of the 21st century curriculum.

A similar problem was also found, namely that HOTS-based instruments had not been used in student assessment. The instruments developed are still sourced from the teacher's handbook, this can be seen when looking at the assignments given to students. The problem caused by the absence of a HOTS instrument is that students are not trained to think critically and analyze information well (Hudiyono & Ilyas, 2020; Munar et al., 2022). This can affect their ability to solve problems and make informed decisions. The HOTS instrument also helps students to develop creative thinking skills. Without these instruments, students may not be trained to think outside the box and create innovative solutions. Additionally, students may not be trained to understand more complex concepts and may have difficulty understanding more difficult subject matter. Without these instruments, students may not be trained to work together in groups, communicate well, and solve problems together (Huda et al., 2019; Ivanović et al., 2018).

Based on the results of the interview, teachers have never implemented the HOTS ability instrument to measure students' abilities, especially in class VI. Teachers also do not analyze the level of difficulty, differential power, and distracting quality of the questions so they cannot train students' high-level thinking abilities to the maximum. The reason is that the teacher's ability to compose questions that have HOTS elements is still low. Teachers do not yet understand the HOTS ability instrument. The instruments available in the field are still in the C1 to C3 range.

Seeing the existing phenomenon, there needs to be a solution to solve this problem. The solution that can be provided is to develop the HOTS ability instrument to train students' high-level thinking skills at SD Negeri 9 Sangsit, especially on theme 2 (Unity in Difference) in class VI. The research results show that there is an influence of HOTS through the SPPKB method in Mathematics learning on students' creative thinking abilities. The HOTS ability instrument that was developed consisted of questions that had cognitive levels C4 (analyzing), C5 (evaluating), and C6 (creating) (Komalasari et al., 2023; Munar et al., 2022). Looking at the cognitive development of students, class VI children are at the level of development in the formal operational phase. In the formal operational phase, students are able to think systematically, develop hypotheses and develop strategic steps in solving problems. This ability to think requires children to be able to think at a higher level. Therefore, children's thinking abilities enter the realms of C4, C5, and C6. From the description above, the development of an instrument consisting of questions containing elements C4, C5, C6 is in accordance with the development of students in class VI. Therefore, it is necessary to carry out research entitled Developing a Higher Order Thinking Skill (Hots) Ability Instrument for Theme 2 (Unity in Diversity) for Class VI Students at SD Negeri 9 Sangsit. It is hoped that through this research, it will be possible to find out the content validity, item validity, reliability, differentiation power, level of difficulty of the HOTS instrument, HOTS ability in class VI elementary school students with theme 2 (Unity in Diversity).

2. METHOD

The research carried out is a type of development research. The steps of this research are in accordance with the model developed by Borg & Gall which has 10 development steps, namely 1) conducting preliminary research, 2) planning, 3) developing initial product types, 4) conducting field trials, 5) revising the main product, 6) conduct primary field trials, 7) operational product revisions, 8) operational tests, 9) final product revisions, and 10) disseminate and implement the product (Koesmadi et al., 2021; Saranani, 2022). However, in this research, the researcher modified the development steps into 5 important parts including: 1) preliminary study, 2) development stage, 3) validation stage, 4) field test, and 5) revision stage. The data collection instrument used in this research was an essay test instrument (Hudiyono & Ilyas, 2020; Yusup, 2018). A test can be interpreted as a measuring tool that has objective standards so that it can be used to measure and compare the psychological state or behavior of individuals. Meanwhile, the essay test requires students' analytical skills in digesting questions and providing answers (Farib et al., 2019; Rosyadi, 2021).

The instrument being developed must be in accordance with the instrument grid that has been created so that later the instrument developed is in accordance with the indicators that have been formulated in the instrument grid. And the source of the resulting data is the quality of the questions produced. This research is research into the development of test instruments in the form of essays which are used to train students to think at a higher level and measure students' high level thinking abilities. In order to test its feasibility, the essay test instrument must first be analyzed which includes content validity test, item validity test, reliability test, different power test, and difficulty level test (Amanda et al., 2019; Setiawan et al., 2021).

3. RESULT AND DISCUSSION

Result

What is done in the preliminary stage is to prepare the development research that will be carried out. At this stage the researcher conducted a survey of schools and prepared references in accordance with the assessment instrument to be developed. The survey carried out in this research took place at SD Negeri 9 Sangsit. The methods used to obtain information on field survey activities are interview methods and observation methods. From interviews conducted with class VI homeroom teachers at SD Negeri 9 Sangsit, information was obtained that Class VI homeroom teachers at the school had not used assessment instruments based on higher order thinking skills (HOTS). This is due to the low understanding of teachers regarding the development of higher order thinking skills (HOTS) assessment instruments. Apart from conducting interviews, observation activities were also carried out by observing instruments developed in schools, especially in class VI.

Based on the results of observations made, the assessment instruments developed in schools at SD Negeri 9 Sangsit do not contain elements of higher order thinking skills (HOTS) in them. The assessment instruments developed are still at cognitive levels C1, C2 and C3. So, it is necessary to develop higher order thinking skills (HOTS) assessment instruments that can train students' higher order thinking. Apart from that, references were also collected in the form of books and journal articles which were used to support the implementation of this development research. In this stage, curriculum analysis is also carried out to determine basic competencies (KD) and indicators for each learning content contained in Theme 2 (Unity in Difference) in class VI. The core competencies (KI) and indicators contained in Theme 2 (Unity in Difference) class VI are presented in.

At the development stage, activities are carried out to design the higher order thinking skill (HOTS) assessment instrument that will be developed. The first step taken was to create a question grid that was used as a guide in developing the assessment instrument. The question grid created must be based on previously determined indicators and basic competencies (KD). The next step is to prepare a higher order thinking skill (HOTS) assessment instrument that matches the question grid that was created previously. In preparing the assessment instrument, the teacher's book and student book for Theme 2 (Unity in Difference) class VI were also used as references and material guidelines in making the assessment instrument. The number of questions created in developing the assessment instrument was 20 questions covering 5 learning content, namely Natural Sciences, Social Sciences, Indonesian Language, Citizenship Education, and SBdP (Rosyadi, 2021; Zuriah & Sunaryo, 2022).

The aim of developing this higher order thinking skills (HOTS) assessment instrument is to train students' high-level thinking skills in accordance with the demands of the 2013 curriculum. Before creating a higher order thinking skills (HOTS) assessment instrument, you must first create an assessment instrument grid. The assessment instrument grid is used as a guide in creating the instrument. The HOTS instrument assessment grid is presented in Table 1.

Table 1. Grid of HOTS instrument assessment

Aspects Of High-Level Thinking Abilities	Sub-Aspect of High-Level Thinking Abilities	Indicators of Higher Order Thinking Skills	Learning Indicators							Cognitive Level and Question Number			Number of Questions
			4.4.1 (IPS)	3.4.2 (BI)	4.4.1 (BI)	3.3.1 (science)	3.4.1 (PKNn)	4.4.1 (PPKn)	3.3.1 (SBdP)	C4	C5	C6	
Critical and creative thinking (critical and creative thinking)	Critical thinking about a phenomenon	Analyze a phenomenon, theory, statement, or concept		√		√	√		√	1,3,4	2		4
									√	5			1
			√					√		7	6		2
						√					8		1
					√	√	√			9,11	10		3
					√						12		1
					√						13		1
					√	√					14,15		2
		Assessing a phenomenon, theory, statement, or concept				√					16		1
Problem solving (solution to problem)	Problem solving of a phenomenon	Determine the solution to a problem	√	√		√	√			18, 20	17,19		4

In its implementation, the development of the HOTS ability instrument for class VI students with theme 2 (Unity in Difference) used the Borg and Gall development model. The development stages of the Borg and Gall model in this development are simplified into 5 stages, namely, preliminary study stage, development stage, validation stage, field test stage and product revision stage. In this research, an expert test was carried out before the instrument was distributed to determine the validity of the content using 5 experts, namely lecturers from the Undiksha Faculty of Education. Content validity is the ability of a test to reflect the whole that is intended to be measured (Pratiwi & Tirtayani, 2021; Utomo, 2022). An instrument is declared content valid if all experts have accepted the instrument without any further revisions (Freankel et al (in Yusuf, Febrianawati, 2018). Test the validity of the content of this research using the CVR (Content Validity Ratio) formula.

Discussion

The results of content expert test research using the CVR (Content Validity Ratio) formula obtained valid content validity results. used in research. This is said to be valid because the instrument is in accordance with the indicators and basic competencies. Write a long paragraph related to that paragraph. The importance of getting an expert test score that is in the very high category in validating an assessment instrument indicates that the instrument has gone through a careful and in-depth evaluation process. A score that reaches a very high category level reflects the level of accuracy and reliability of the instrument, making it a reliable tool in the research context. Thus, this assessment instrument can be considered valid and effective for use in the research in question. The validity of an instrument resulting from a high expert test score can be interpreted as the suitability of the instrument with the indicators and basic competencies that have been determined. The validation process carried out by experts confirmed that this assessment instrument truly covers relevant and essential aspects according to the research objectives. Therefore, the use of this instrument in a research context is considered to provide assurance that the data obtained will be able to provide an accurate and representative picture regarding the variables you want to measure (Setiawan et al., 2021; Yusup, 2018).

After knowing the validity of the content, an analysis of the validity of the question items is then carried out. The results of the research on the validity of the questions using the point-biserial correlation formula were declared valid. Apart from the high expert test results, the results of further analysis also provide positive indications regarding the consistency of the test items in producing scores that are in line with expectations. This analysis illustrates that each question or item in the assessment instrument meets the established evaluation standards. This consistency is a critical aspect in assessing the reliability of the instrument and provides additional confidence in its validity. The success of the questions in producing scores in line with expectations reflects that each question was designed carefully and took into account both content aspects and the level of difficulty in accordance with the characteristics of the students. This consistency creates fair conditions in assessment, ensuring that each student has an equal opportunity to demonstrate his ability or knowledge related to the competency being measured. The results of the analysis provide an overview of the accuracy of the questions in evaluating students' understanding. Question items that produce scores in line with expectations support a more accurate interpretation of students' abilities in mastering certain material or concepts. Therefore, the success of the test items in achieving this evaluative objective indicates that the assessment instrument is able to provide a comprehensive and precise picture regarding student achievement (Kurniawan & Lestari, 2019; Suratmi et al., 2020).

Next, a reliability test of the instrument developed was carried out. The results of the reliability test research using the KR-20 formula were stated to have high reliability. The existence of details regarding small errors contained in obtaining measurement results from the questions given raises important considerations regarding the reliability of assessment instruments, especially in essay type questions. The errors mentioned, even if small, can be a significant clue regarding the quality and consistency of the instrument. This analysis indicates that the essay questions have a high level of reliability, that is, they can be relied on to provide relatively consistent results if tested on the same group at different times. The focus on small errors that may occur in obtaining measurement results highlights the sensitivity of the instrument to variations in students' answers. In the context of essay questions, the level of complexity and subjectivity of answers can introduce the potential for error. However, the emphasis on the reliability of the instrument shows that, in general, this instrument is able to consistently measure students' abilities or knowledge over time. The success of the essay questions in maintaining high reliability opens up opportunities for the application of this instrument in repeated measurement situations. If tested on the same group at different times, the results obtained can be considered relatively stable and reliable. Therefore, essay instruments can be an effective tool for evaluating students' understanding in depth and contextually (Hudiyono & Ilyas, 2020; Triwardhani, 2022).

The next test is to determine the level of difficulty of the instrument. The research results of testing the difficulty level of the instrument using the Microsoft Excel application are in the medium category. This is because the instrument is not too easy or too difficult for students to answer. Apart from that, it can also be seen from the results of students answering correctly and incorrectly.

4. CONCLUSION

The Higher Order Thinking Skills (HOTS) ability assessment instrument for theme 2 "Unity in Diversity" in class VI elementary schools needs to be developed contextually and relevant to the material being taught. The results of content validity, item validity and reliability tests show that the instrument is valid, consistent and reliable. Furthermore, the difficulty level analysis shows that the instrument has a medium level of difficulty, indicating that the questions are neither too easy nor too difficult. Therefore, this instrument can be considered as an effective tool for measuring high-level thinking abilities in class VI students related to the theme "Unity in Diversity" is suitable for measuring students' high-level abilities.

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