

# Utilization of HOTS-Based Student Worksheets With the Barcode System as Teaching Materials in Civic Education Learning

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## ABSTRACT

Student worksheets that have been used by teachers have not been able to involve students in higher-order thinking (HOTS) so that teachers have difficulty achieving higher-order thinking learning goals. This study aims to answer the formulation of the problem of how to use HOTS-based student worksheets with bar code systems as teaching materials in learning Civic education at MAN 3 Palembang City. This research is a descriptive quantitative study with data obtained through a questionnaire and documentation process. The results of this study indicate that 75% indicate the need to use HOTS-based student worksheets, 95% of these are very helpful for students in achieving HOTS, 83% of students answered that these students' worksheets were interesting with the bar code system. and some additional features in student worksheets and 90% of students argue that the use of HOTS-based student worksheets with the Barcode system as teaching material in learning civic education at MAN 3 Palembang City has been successfully implemented in learning and adapted to subjects. This data is also strengthened from the results of the teacher's questionnaire that the student worksheets are able to train students to think highly, especially in completing the analysis of cases of human rights violations.

**Keywords:** *HOTS-based student worksheets, Bar code, Teaching materials, Civics education.*

## 1. INTRODUCTION

The quality of a country's education is an indicator showing the success of a country. The quality of education in Indonesia does not only rely on intellectual thinking but also must be demonstrated by behavioral intelligence. Especially the demands of the 21<sup>st</sup> century require that individuals have certain abilities in their fields.<sup>13</sup> This means that education can be said to be successful if it achieves quality with quality education that can form productive, innovative, creative human resources and able to contribute to life.

This is in accordance with the objectives of national education that the purpose of national education is to develop capabilities and form a dignified national character and civilization in the framework of educating the nation's life, aiming to develop the potential of students to become human beings who believe and fear God Almighty, have noble character, healthy, knowledgeable, competent, creative, independent, and become democratic and responsible citizens [1]. To achieve the national education goals, there are certainly many things that

must be improved, one of which is critical thinking in solving problems. Problem solving skills are closely related to higher order thinking skills (HOTS) [2]. The ability to think critically is of course very important so that students are able to provide solutions and solve existing problems. This is also supported by the demands of critical thinking to solve problems in the future [3].

In the Minister of Education and Culture Regulation No. 69 of 2013 concerning Basic Competencies and curriculum structure for high school/madrasah aliyah, at core competency-3 states students must be able to understand, apply, analyze factual, conceptual, and procedural knowledge based on curiosity about science, technology, art, culture and humanities with insight into humanity, nationality, statehood and civilization related to the causes of phenomena and events, as well as applying procedural knowledge in specific fields of study according to their talents and interests to solve problems. The core competency-4 states that students are required to be able to cultivate, reason, and present in the realm of concrete and abstract domains related to the development they learn in school independently and

be able to use methods according to scientific principles [4].

The two core competencies obtained an outline that students are required to be more able to think with HOTS in dealing with any problems that exist Problems not only in everyday life, but also in the world of education. Therefore it is important that the teacher's ability to bring teaching materials that have been arranged appropriately to achieve higher order thinking learning objectives.

The opinion of Anglo and Cross also suggests that critical thinking skills are closely related to high-level skills that begin with analysis, synthesis, problem solving and are able to provide evaluation in various ways [5]. The concept of critical thinking is also conveyed by MOE that critical thinking skills are able to evaluate and make logically correct judgments and rational evidence. MOE's opinion is also reinforced by Beyer that the quality of something is determined by the results of critical thinking [6].

The results of the preliminary study indicate that students need innovative and creative teaching materials that arouse students' interest in studying civic education. Students also only study the material listed and work on the questions, not led to students discussing, asking each other, and presenting which causes reciprocity and puts forward HOTS. Students, as subjects who need direction and knowledge, want teaching materials that attract learning interest and novelty in the content of the material. Therefore, researchers tried to provide a solution by developing HOTS-based student worksheets as teaching materials for students to be able to understand civics education, especially the material for good human rights enforcement efforts. Teaching materials that can motivate students to like and be enthusiastic in learning Civic education with material on efforts to uphold human rights. This is also one of the systems that will be developed later on the barcode system. Which means that the assignments that will be given to students will directly access the internet, thereby reducing the student worksheets that exist in general.

According to Sudjana, Nana and Rivai, Ahmad stated some of the benefits of using student worksheets in the learning process, including: a) Learning will attract the attention of students so that it can foster learning motivation; b) The learning material will have a clearer meaning so that it can be better understood by students, and allows students to master the learning objectives well; c) Learning methods will be more varied, not solely verbal communication through wording by educators, so that students do not get bored and educators do not run out of energy. Students do more learning activities, because they do not only listen to educators' descriptions, but also other activities such as observing, doing, demonstrating and others [7]. Therefore it is important to meet the requirements of

good student worksheets. Endang explained that in the preparation of worksheets students must meet various requirements, namely didactic requirements, construction requirements, and technical requirements [8].

HOTS-based student worksheets in research are in line with the Ministry of Education and Culture, Directorate General of Primary and Secondary Education, higher order thinking skills is the ability to recall information (recall) and more assessment measures the ability which consists of transferring one concept to another, processing and applying information, looking for links from different kinds of information, using information to solve problems, analyzing ideas and information critically [9].

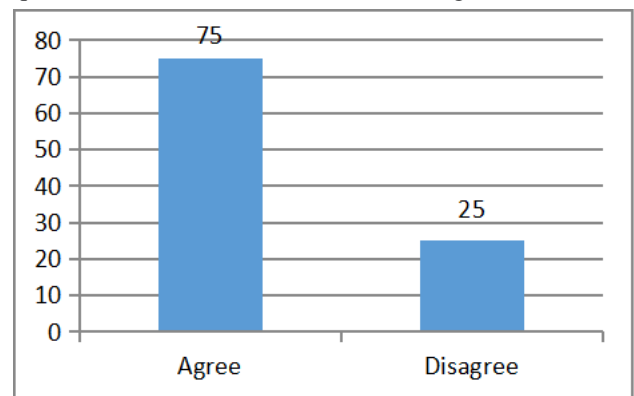
Based on the description above, the researcher can conclude that higher-order thinking is a process of thinking and reasoning skills to solve a case or problem that involves mental activity in achieving the goal of gaining knowledge. Based on the description above, it can be concluded that the importance of using HOTS-based student worksheets with the barcode system as teaching material in civic education learning.

**2. METHOD**

This research uses descriptive qualitative. As for the research subjects in this study were students at MAN 3 Palembang, especially class XI IPA 1, totaling 40 students and 3 teachers of civic education subjects. Data collection was carried out by distributing questionnaires to students and teachers of Civics Education subjects. Data analysis was performed by interpreting the results of the questionnaire.

**3. RESULT AND DISCUSSION**

This study began by distributing a questionnaire to 40 students of class XI IPA1 who were selected by considering the research objectives. The results of the questionnaire distribution obtained the Figure 1:

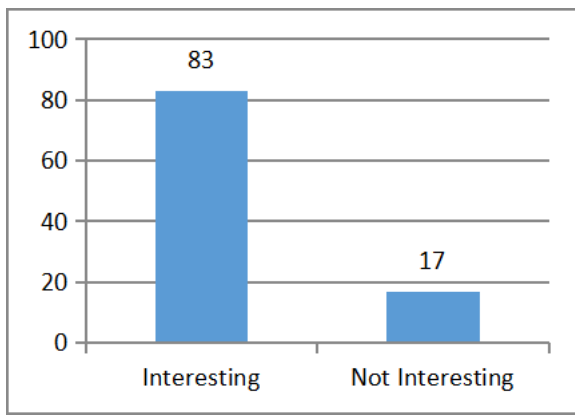


**Figure 1.** Need for the use of student worksheets

Based on the data obtained 75% of respondents' answers that it is necessary to use student worksheets. The development in question is a HOTS-based student

worksheet with a barcode system in the Citizenship Education subject. Meanwhile, 25% indicated that they did not agree with the use of these students' worksheets. This is also in line with the results of the questionnaire on the three civic education teachers that MAN 3 Palembang teachers 100% agree to develop HOTS-based student worksheets with a barcode system because it will make it easier for teachers to achieve learning goals, namely high-order thinking skills.

After developing student worksheets, the next is a question about how attractive the HOTS-based student worksheets are used in learning, especially with the presence of citizenship info features, images and the availability of internet link access in each lesson. This is shown in figure 2.

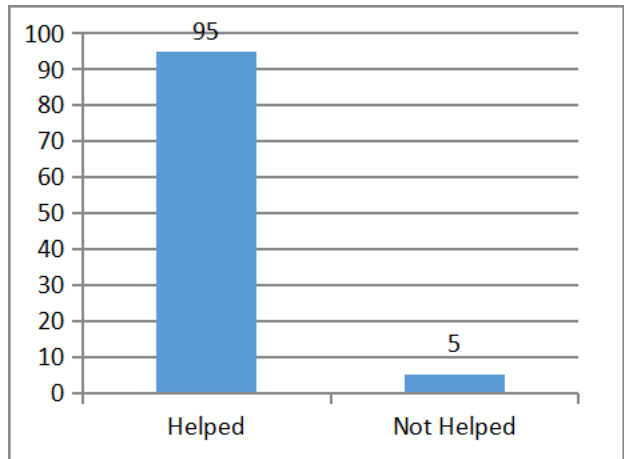


**Figure 2.** Opinions about the appearance and features of students' worksheets

Based on the questionnaire data above, 83% of students argued that the student worksheets that were used during this learning attracted attention because of the presentation of several additional features and 17% indicated that the worksheets of these students were not interesting. This is also reinforced by the results of the questionnaire to the three civic education teachers that the HOTS-based student worksheets with this bar code system make learning more interesting, especially the presentation of interesting material and questions along with citizenship information and easily accessible internet link features. This is in accordance with the percentage obtained at 100%.

Next is whether the HOTS-based student worksheets with this bar code system help students understand civics education learning materials. The results that shown by fig. 3 and 4 indicate that the HOTS-based student worksheet with the bar code system found that 95% of students stated that it helps make it easier to understand civic education learning materials. This is also reinforced by the results of the questionnaire 3 teachers of Civic Education at 100% that the availability of teaching materials in the form of student worksheets is very helpful in making it easier for students to understand the material. This is

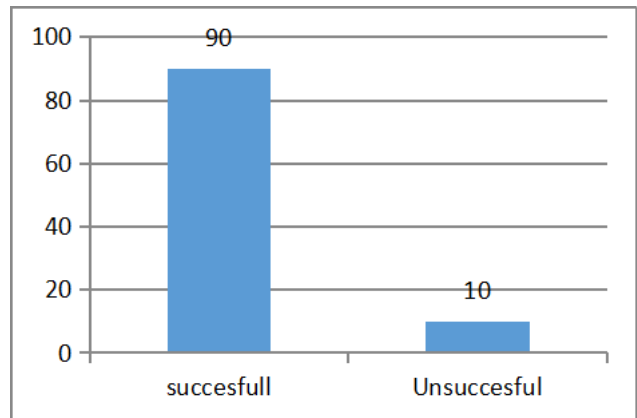
because the aim of human rights materials is higher-



order thinking.

**Figure 3.** Opinions about student worksheets helps make it easier to understand the material

In the last question regarding the success of HOTS-based student worksheets with the barcode system as teaching material, the following results were obtained:



**Figure 4.** Opinions about the success of HOTS-based student worksheets with bar code systems.

Based on the results of the questionnaire, it was found that 90% of students stated that the HOTS-based student worksheets with the bar code system were successful as teaching materials. This is also reinforced by the results of the questionnaire for civic education teachers at 100% that teaching materials are important in supporting the achievement of learning objectives. This is because teaching materials in the form of HOTS-based student worksheets are difficult because of the limitations of teachers in making student worksheets independently and being able to train higher-order thinking skills. so that the HOTS-based student worksheet is successful as a teaching material in the Civic Education subject.

The right teaching materials will certainly make it easier to achieve higher-order thinking. Demand in the 21st century era to be able to package learning with the term 4C which means collaborative, critical thinking, creative and communicative. Critical thinking according to Sucipto thinking is a mental activity that occurs when a person faces a problem or situation that must be solved. Thinking activities can be classified into lower order thinking and higher order thinking. Therefore, according to Anderson and Krathwohl in Gunawan, this high-level thinking begins with the aspects of analyzing (C4), evaluating (C5) and creating (C6).

The importance of critical thinking in civic education subjects is one of the objectives of the Civic Education subject in the Regulation of the Minister of National Education of the Republic of Indonesia Number 22 of 2006 concerning Content Standards, so that high-level learning can be achieved.<sup>14</sup> The demand for critical thinking shows that the importance of the availability of worksheets learners in the learning process. Chappell and Craft and Susantini et al. which states that student worksheets are part of teaching materials that can be used to develop thinking skills, ask and answer questions, establish relationships and assess student learning outcomes [10],[11]. This is also reinforced by Burton stated that students who can develop the learning experience of students are tools that: informative (informing learning objectives), there is a learning strategy (for face-to-face learning and practice), clearly formulating learning experiences, motivation, exploration helps students make new discoveries in learning which is accompanied by good features [12].

According to Daryanto; Ozmen and Yildirim stated that student worksheets are worksheets which contain materials related to learning activities that will help students be active and more meaningful. which means that the students' worksheets that are used must make the learning experience more meaningful. Learning is a process of providing learning experiences that lead to the achievement of students' competencies [13],[14].

Swan and Koohang stated that meaningful learning will provide a strong learning experience. A strong learning experience will allow increased interpersonal, intrapersonal and knowledge-related competences. Therefore the importance of the ability of teachers to master IT in learning because the demands will have to ensure that all teachers train ICT to acquire skills for teaching and learning [15]. In this case it is a student worksheet that uses a barcode system so as to simplify the learning process.

Thus, high-quality civic education not only prepares children for the most basic civic participation - choosing and understanding how power is shared - but also helps them acquire broader skills, such as negotiating with fellow citizens to make difficult

decisions that affect their communities. .10 This means that citizenship education also makes it a habit to make decisions that are already in the higher order thinking category.

To achieve the objectives of the civic education subject, there must be a good student worksheet. On a good student worksheet, of course, it must meet the requirements of a good student worksheet that must meet the elements, namely the title, study instructions, basic competencies or subject matter, supporting information, assignments or work steps, and assessment. also must meet the three requirements of good student worksheets from didactic, construction and technical requirements [16]. On the HOTS-based student worksheet with this barcode system has met the existing requirements so that it is appropriate as teaching material in Citizenship Education learning. This can be seen from the substance, appearance and evaluation provided in the worksheets of students who are able to achieve higher-order thinking goals. This is because the presentation of good student worksheets will certainly affect the success of their use.

#### **4. CONCLUSION**

The importance of the availability of HOTS-based student worksheets with the bar code system as learning teaching materials will greatly assist students in achieving higher-order thinking learning goals. Besides that, the availability of HOTS-based student worksheets will certainly make it easier for teachers to train students to be able to solve problems that will become meaningful experiences and learning compared to conceptual learning. The existence of a feature with a bar code system will make it easier for teachers to disseminate existing student worksheets so that learning can be more effective and efficient.

#### **AUTHOR CONTRIBUTIONS**

The correspondence author with other authors jointly carried out this research. Mariyani acts as the research organizer and provides direction for the course of the research. Rini Setiyowati and Husnul Fatimah authors analyzed the data and interpreted them into tables and the three of them compiled the results of the research carried out

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