ANALYSIS OF THE NEED FOR THE DEVELOPMENT OF HOTS ASSESSMENT INSTRUMENTS BASED ON GEOGRAPHICAL LITERACY OF INDONESIAN MARITIME AND AGRICULTURAL MATERIALS IN SOCIAL SCIENCES COURSES

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Abstract. This study aims to: Assess the need for instruments for Higher Order Thinking Skill questions based on geographic literacy in the social studies. The research subjects were students of SMP Insan Cendekia Al Mujtaba. The research sample was determined using startified random sampling. The data collection process used in the study used item analysis, interviews. The results showed: 1) Based on a needs analysis with an analysis Assessment items in 2019 and Assessment items in 2020, 94% of the 2019 and 84% of the still a matter of Lower Order Thinking Skills. 2) As many as 88% of teacher respondents who are members of the 2022/2023 Social Studies Subject Teacher Consultation agree that the development of HOTS question instruments is very important and needed as a reference in preparing assessment instruments. 3) Important and necessary training in the preparation of HOTS-based question instruments needed by teachers at SMP ICBS.

Keywords: HOTS, Assessment Instrument, Geographic Literacy

INTRODUCTION

The educational process can ideally help students develop thinking skills in order to be able to face the challenges faced in everyday life (Saido, et al., 2015: 13). In line with this opinion (Miri, David & Uri 2007: 354) explains that the changing and challenging world conditions require students, as our future successors, to be able to develop their knowledge capacity in a higher order. Thinking skills, such as critical systems thinking, decision making, and problem solving.

One of the main focuses of 21st Century thinking skills in achieving learning goals is HOTS (Saido, et al., 2015: 13; Maftuh, 2016: 19; Shukla & Dungsungneon, 2016: 211). The urgency of the importance of higher order thinking skills is reinforced by Craig's opinion (2011: 70) that the core problem in the 21st century is higher order thinking skills. In this century individuals will be faced with unusual problems, uncertainties, and dilemmas. If they succeed in having these skills, they will be able to become critical, logical, reflective, metacognitive, and creative learners. These various components are the characteristics of HOTS in 21st century education. Thus, needs related to higher order thinking skills become necessary skills in the 21st century in learning activities.

The development of HOTS assessment is one of the main goals in education so it is necessary for teachers to discuss how to create teaching that instills HOTS in students. So that HOTS becomes an important aspect in teaching effectively (Yen & Halili, 2015: 41). In fact, such things cannot be presented in the learning process. So far both in terms of teachers and students still do not understand what HOTS is. Teachers are still confused in developing HOTS-oriented assessment instruments, besides that there are also no specific examples in the field of social science regarding

HOTS assessments. This causes a lack of understanding of teachers in developing HOTS assessment instruments making teachers less creative in making assessment questions.
The HOTS assessment puts more emphasis on the ability to analyze, evaluate, and create or in a bloom taxonomy, which means at levels (C4), (C5), and (C6). In social studies learning questions the ability to analyze, evaluate, and create is very applicable, for example, the topic of a problem that is currently being discussed is presented and students can analyze or evaluate these problems so as to create solutions to these problems starting from elementary and secondary levels.
The geographical point of view which examines phenomena based on a spatial approach also has important benefits for helping students deal with spatial problems in the context of social symptoms of society related to geographic literacy. According toEdelson, C. Daniel. (2010)Geographic literacy is not only knowledge of geography, a geographically literate individual understands the relationship between human beings (political, cultural, and economic) and their interactions with the resulting impacts on the environment (water, plant, and animal ecosystems). This makes it a unique concept to develop an assessment instrument based on geographic literacy with the HOTS level in social studies class VIII KD: 3.3Analyzing the advantages and limitations of space in demand and supply as well as technology, and their influence on inter-spatial interactions for economic, social and cultural activities in Indonesia and ASEAN countries regarding Indonesia's maritime and agricultural potential.
Based on this description, the researcher's goal is to analyze the need for HOTS instrument development in ICBS Middle Schools, and the hope is that researchers can develop and test the feasibility and effectiveness of HOTS instruments based on geographic literacy in social studies subjects on Indonesia's maritime and agricultural potential. In addition to conducting research, the researchers hope to be able to provide accurate recommendations according to the needs of the learning system implemented at ICBS Middle School so as to be able to create a learning atmosphere that trains higher-order thinking skills in ICBS Middle School students.

RESEARCH METHOD

Overall this research was designed as Research and Development (R and D) research which is a development research design. According to Sugiyono (2015: 407), namely research methods used to produce certain products and test the feasibility and even the effectiveness of these products. This development research is focused on developing an instrument for assessment questions based on higher order thinking skills (HOTS) for Social Studies class VIII even semester of the 2022/2023 academic year at SMP ICBS in KD: 3.3 Analyzing the advantages and limitations of space in demand and supply as well as technology, and its influence on inter-spatial interactions for economic, social and cultural activities in Indonesia and ASEAN countries on the subject matter of Indonesia's maritime and agricultural potential.
According to Borg and Gall there are ten steps to implementing a research and development strategy (Nana Syaodiah, 2007: 169-170). The ten stages of implementation according to Borg and Gall, in this study the authors classify them into 3 stages, which include 1) The needs analysis stage: consists of a). information gathering, b). planning research plan writing. 2) Development stage: consists of a). Develop initial product, b). initial field trials, c). initial product revisions that lead to the main product. 3) Evaluation stage: consists of a). conduct field trials, b). major product revisions, c). Test the effectiveness of questions.
Studies on needs analysisneeds analysis for the development of HOTS assessment items based on geographic literacy in this manuscript using data collection methods in the form of interviews, questionnaires, and item analysis.Usually not all questions can be said to be HOTS oriented, because HOTS oriented questions have certain characteristics as explained by Warisdiono (2017: 3) that there are several characteristics of HOTS questions, namely: 1) measuring high-level thinking skills, abilities in the stage this is no longer an ability in the realm of remembering but rather an ability in a higher realm including the ability to think critically, creatively, solve problems, and the ability to express opinions, so that one can dare to make decisions. 2) based on contextual problems, HOTS questions generally use more real (contextual) situations in everyday life. 3) Using various forms of questions aims to provide more detailed and comprehensive information on student abilities. Simply put, it can be seen in table 1.

Table 1. Data collection technique

Indicator	Aspect	Technique	Informant
Analysis of the needs for the development of instruments for HOTS assessment questions	▪ Student learning outcomes ▪ Item analysis ▪ Learning Media ▪ Diagnostic test	▪ Questionnaire ▪ Interview ▪ Document study	▪ Head of curriculum ▪ Subject teacher ▪ New Student Admissions Team ▪ MGMP IPS Sukoharjo Regency in 2022/2023

This study took a sample of 4 classes at ICBS Middle School for the 2022/2023 school year. The samples in this study were distinguished by class which refers to the admission test for new students and student diagnostic tests before being grouped into groups or classes. The sample for this research was class VIII students at ICBS Middle School for the 2022/2023 academic year. The samples were taken using a stratified random sampling technique. The strata are based on the diagnostic tests of class VIII students of SMP ICBS for the 2022/2023 academic year. Because based on the diagnostic test data, they can be categorized as high, medium, low, and very low. These groups are in the feasibility and effectiveness testing stages and will become research subjects.

RESULT AND ANALYSIS

1. Result and Analysis

HOTS based assessment instrumentGeographic literacyWhat was developed in this study is the subject matter that will study Indonesia's maritime and agricultural potential for class VIII ICBS Middle School students in 2022/2023. The novelty contained in this research is to develop instruments for HOTS assessment questions based on geographic literacy to improve students' higher-level thinking skills. BSpatial-based high-level thinking is meant to build students' sensitivity to events around them in the context of Indonesia's maritime and agricultural potential material. Form of recommendation Not only is the evaluation process developed, but it can be in the form of patterns and policies for determining references in the preparation of test instruments for all subjects and recommendations for improving teacher professional skills regarding the preparation of HOTS-based test instruments.
Based on the analysis of the items carried outan analysis of 50 items on the 2019 Final Semester Assessment (PAS) and 50 items on the 2020 Mid Semester Assessment (PTS) showed that 94% of the 2019 PAS questions and 84% of the 2020 PTS questions were still classified as Lower Order Thinking Skill (LOTS) questions).

Table 2. Analysis of assessment items

Assessment Activities	Year	About LOTS	About HOTS	Number of Questions
PAS	2019	94% (47 Questions)	6% (3 Questions)	50 Questions
PTS	2020	84% (42 Questions)	16% (8 Problems)	50 Questions

These results can describe the policies that are used as school references in giving question level categories. Based on documents and interviews with the school curriculum section and the

chairman of the exam committee, the difficulty level percentage used as a reference by teachers at ICBS Middle School in making 2020 Year End Assessment (PAT) items with a distribution of 70% easy questions, 20% medium questions, and 10% difficult matter. Based on these results, the researcher deepened the study of policy documents in the form of circulars for the preparation of questions in other evaluations in recent years. The author realizes that the types of questions that are difficult do not mean that they are included in the HOTS or LOTS categories, and conversely that easy questions are not in the HOTS or LOTS category of questions. After analyzing the items by looking at the classification of Operational Verbs (KKO) referring to Bloom's taxonomy in the realm of cognition revision by Anderson and Krathwohl. Review policy documents and analysis of odd semester PAS question items from 2021 to 2023 with the percentage of difficulties found in the circular letter 70% easy questions, 20% medium questions, and 10% difficult questions in class VIII social studies subjects. In general, it can be seen in table 3 below.

Table 3. Comparison of types of assessment activity questions

Assessment Activities	Year	About LOTS	About HOTS	Number of Questions
PAS	2021	72% (36 Problems)	28% (14 Problems)	50 Questions
PAS	2022	68% (34 Problems)	32% (16 Problems)	50 Questions
PAS	2023	48% (24 Problems)	52% (26 Problems)	50 Questions

The data shows that the Social Sciences subject teacher at SMP ICBS has improved the quality of the questions. Some of the factors that led to the policy for compiling the assessment activity questions were submitted due to adjustments to the impact of Covid-19 in learning activities. Apart from that, the quality of the questions increased because the foundation really supported the professional development of ICBS Middle School teachers by inviting the HAFCS agency to conduct HOTS-based question preparation training for all ICBS Middle School teachers which was conducted for two months along with the assistance provided. This form of support from the foundation is proof that the foundation's commitment to organizing the learning process in schools supports the professional development of teachers so that it can have an impact on the roles each teacher takes.

In determining the need for HOTS-based question instruments, the researchers also studied through the results of a survey of writers through questionnaires showing that 88% of HOTS-based question instrument development was very important and necessary. This survey was conducted on a group of social studies subject teachers or commonly referred to as Social Studies Subject Teacher Deliberations (MGMP) for the 2022/2023 school year. The results also mean that the development of HOTS-based question instruments is able to foster critical thinking for students if given in accordance with portion of cognition level at each level. Improving the quality of learning is also carried out by social studies teachers at SMP ICBS by designing HOTS-based learning processes and evaluations. This increase began to be carried out in the even semester learning process in 2023 in delivering material toKD: 3.3 Analyze the advantages and limitations of space in demand and supply as well as technology, and their influence on inter-spatial interactions for economic, social and cultural activities in Indonesia and ASEAN countries on the material of Indonesia's maritime and agricultural potential. The selection of the material is based on appropriate learning objectives so that students are able to develop critical thinking skills throughevents and changes in people's lives based on the principles of cause and effect, territoriality, processes and social problems in the context of Indonesian maritime and agricultural potential material based on geographic literacy. So that this learning design is very much needed so that the process and delivery and evaluation of the implementation of learning can run well according to the learning objectives.

Geographical literacy which is used as a reference in the process and evaluation of learning in this study uses Edelson's concept of geographic literacy. Of the eight concepts introduced by Edelson,

researchers take three main components in geographic literacy, namely 1) Interaction; which in the HOTS instrument development association the authors interpret as an understanding of the relationship between the natural environment and humans, meaning that various human attitudes and behaviors will affect the existence of the natural environment and both get causal influences from the activities carried out. 2) Interconnection; as the process of making the right decision based on geographical conditions with an understanding that involves several spatial activities. 3) Implications; it is associated as a precise decision-making process based on geographical conditions with an understanding that involves several spatial activities. Based on the three concepts of Edelson's geographic literacy that were developed, the authors compiled the HOTS item instrument based on geographic literacy with a distribution of 46% referring to Edelson's geographic literacy implication component, and 27% respectively referring to the interaction and interconnection geographic literacy components.

Table 4. Geographic Literacy HOTS Instruments grid

Achievement Indicator	Geographic Literacy	Cognitive Level	Question Number	Question Form
Describes the understanding of Maritime economics from experts.	Interaction	L3/ C4	1	Multiple choice
Examine the strategy or policy of Indonesia's maritime economic development	Implications	L3/ C4	2	Multiple choice
Predicting Indonesia's maritime economic potential	interconnection	L3/ C5	3	Multiple choice
Describe the difference between maritime economic policy and maritime economic policy.	Interaction	L3/ C4	4	Multiple choice
Examines the key factors of Indonesia's agricultural economic strength	interconnection	L3/ C4	5	Multiple choice
Assess the government's role in Indonesia's agricultural economic activity	Implications	L3/ C5	6	Multiple choice
Detecting obstacles to the development of Indonesian agriculture	Implications	L3/ C4	7	Multiple choice
Developing agricultural strategies for each region in Indonesia	interconnection Interaction Implications	L3/ C6 L3/ C6 L3/ C6	8 9 10	Multiple choice
Formulate and design business locations for the development of marine and agricultural industries in Indonesia	Implications	L3/ C6	11	Project

The HOTS question instrument that was compiled had the type of multiple choice question with optional alternative choices (A, B, C, and D) as well as project questions designed in group activities. A total of 10 questions were created, consisting of ten (10) multiple choice questions and one (one) group activity project. The review is related to the quality of the instruments that have been compiled by researchers using valid and reliable assessment procedures so that HOTS products can be used as a tool for evaluating student learning processes. There are many benefits to be gained if students have high-order thinking skills, one of which is the ability to solve problems. In addition, according to Newman and Wehlage in (Widodo & Kadarwati 2013: 162) states that "HOTS requires students to manipulate information and ideas in ways to transform their meaning and implication, such as when students combine facts and ideas in order to synthesize,

generalize, explain, hypothize, or arrive at some conclusion or interpretation. The meaning of this sentence is that with HOTS students will learn to go deeper into the material presented and try to relate it to students' daily lives, when students can combine facts and ideas so that students can make decisions, compare, explain, hypothesize, or arrive at a conclusion or interpretation. HOTS learning can make students able to distinguish ideas or ideas, dare to argue, have the ability to solve problems, be able to construct explanations.

2. Discussion

One of the main focuses of 21st Century thinking skills in achieving learning goals is HOTS (Saido, et al., 2015: 13; Maftuh, 2016: 19; Shukla & Dungsungneon, 2016: 211). The importance of higher order thinking skills is also expressed by Craig (2011: 70) that the core problem in the 21st century is higher order thinking skills. Individuals will be faced with unusual problems, uncertainties, and dilemmas. If they succeed in having these skills, they will be able to become critical, logical, reflective, metacognitive, and creative learners. These various components are the characteristics of HOTS. The design of processes and types of learning assessment instruments that are effective and measurable must be developed and implemented. The purpose of the assessment is to describe learning skills,

An instrument is a tool that meets academic requirements, so it can be used as a tool to measure a measuring object or collect data about a variable.(Retnawati, 2016). Process and assessment activities become an important unit that is planned and measurable so that learning objectives are achieved and the preparation of assessment instruments becomes a valid tool for measuring the achievement of learning objectives. So that with this the teacher can make assessment instruments that can develop students' thinking skills, one of which is HOTS. This is very necessary to see the success of students and to find out whether or not the learning objectives set in the curriculum have been achieved. Broadly speaking, with the development of problem instruments, you should be able to change and adjust the methods and models that are applied during the learning process. When methods and models are not adapted to design that supports students' ability to think higher orderly,

The implementation of ICBS SMP level education in Baki District, Sukoharjo Regency applies the 2013 Curriculum which expects a paradigm shift in the implementation of learning in schools. Along with the times and the implementation of the 2013 curriculum, ICBS Middle School also pays attention to increasing student HOTS as a demand for abilities that must be fulfilled for 21st century education, namely students must achieve the ability to create, not only remember and understand. Even the vision of this school is to realize pious, intelligent, and character human resources. While the intended definition of intelligent is intelligent in strengthening character, based on faith and technology.

To support this vision, all teachers at SMP ICBS must be able to carry out learning that supports this vision. Including social studies learning whose object of study is society and the problems that exist in it. So that higher order thinking (HOTS) is very suitable if applied in social studies lessons. This can encourage students to have the ability to analyze a problem and can stimulate critical thinking skills and provide solutions to these problems. Higher-order thinking skills can also train students in working on questions that require high analysis. The ability to think is very important in building the meaning of social studies learning itself, as explained in Permendikbud number 58 of 2014 the purpose of social studies education is for students to have the ability to think critically and logically so that they can understand concepts related to social interactions that exist in people's lives in order to create a better life and overcome social problems contained in it (Kemendikbud, 2014: 488). "the ability to perceive the visual world accurately, recognize and describe a shape in the mind". This can be seen from the ability of students to solve spatial problems by recognizing the location of phenomena/objects, finding places, understanding the context of current events, developing a spatial perspective and learning to use geographic tools. Space Intelligence according to Gardner (2000: 50-53) is "the ability to perceive the visual world accurately, recognize and describe a shape in the mind". This can be seen from the ability of students to solve spatial problems by recognizing the location of phenomena/objects, finding places, understanding the context of current events, developing a spatial perspective and learning to use geographic tools.

Teaching and assessment based on geographic literacy in social studies learning can train students in building spatial intelligence because it associates understanding of human interaction with the

environment. Edelson explained that geo-literacy enables people to steer away from choices that will be costly to themselves and others. Furthermore, Edelson also added that the term in the field of geography education is combined by the so-called three are interactions, interconnections and implications. Interaction, in principle, is in the form of an understanding of the relationship between the natural environment and humans, meaning that various human attitudes and behaviors will affect the existence of the natural environment and both get a causal influence from the activities carried out. interconnection, is the understanding that a place with another place has similarities and differences in geographical characteristics that are interrelated so that the impact of activities varies according to activities. And Implications, which are the right decision-making based on geographical conditions with an understanding that involves several spatial activities. The characteristics of IPS is a study related to social phenomena and social problems, related to human life and its environment and interrelated and influencing each other by following the principles of cause and effect Supardi (2011: 4).

The next form of needs analysis for HOTS instrument development is to test the feasibility and effectiveness of the products produced. The steps will be presented by the researcher in the form of a complete thesis or in the form of a manuscript with a different title. Briefly and as an illustration of the next step to test the feasibility and quality of the product produced by the author using valid and reliable assessment procedures. The coefficient of content validity in this study was calculated based on the score given by expert judgment by involving experts from the fields of measurement and social studies or geography. The results of expert judgment are then calculated using the Aiken formula, (Azwar, 2016: 116). The range of possible V values obtained is 0 to 1. The higher the V value, the higher the validity value of an item, and vice versa, the lower the V value, the lower the validity value of an item. A validity coefficient of around 0.8 is acceptable and considered satisfactory (Retnawati, 2016: 19). The data analysis technique for estimating the reliability of this instrument uses an internal consistency estimation technique with the Cronbach-alpha formula assisted by the IBM SPSS 23 application. If the Cronbach-alpha value is 0.60 and less than 1, then the instrument has a high correlation or is reliable, whereas if the Cronbach-alpha value is Cronbach-alpha is below 0.50, so the instrument has a low correlation or is not reliable (Basuki and Hariyanto, 2014: 105). This is also supported by Surapranata (2009: 114), that the reliability coefficient is 0. 5 can be used for research purposes. Then in the effectiveness of the study, the researcher obtained from the results of the analysis of student responses that contained some information about students' abilities in the form of scores. The results of students' abilities are presented in the form of a graph of the ability frequency distribution. The category of students' higher order thinking skills abilities was obtained based on student scores grouped in interval classes. From the results of this assessment, it can be seen which parts of the material are considered difficult by students, so the teacher's task is to re-explain the parts of the material that are considered difficult. So that in the future students can understand all the material that has been explained and get optimal grades. This assessment includes measurement and evaluation and in the end this information is used by students and teachers (McMillan, 2012: 118). It is used by students to find out how far students are in learning, while teachers can use it as material for evaluating teachers in teaching. Student success in learning can be known from the results of the assessments carried out (Prihatni, Kumaidi, & Mundilarto, 2016: 113).

CONCLUSION

The conclusions of this study indicate that 1) The development of instruments at the HOTS level is important and needs to be developed in order to stimulate the learning process and students' critical thinking skills; 2) It is important to develop geographic literacy based HOTS questions in the process and evaluation of learning to improve critical thinking skills in spatial concepts on Indonesian maritime and agricultural potential in class VIII students of SMP ICBS. 3) The form of the researcher's recommendation as a form of self-development and improvement of the professional abilities of ICBS Middle School teachers needs and is important to hold HOTS question preparation training.

The stimulation of the HOTS question instrument that makes students practice so that they have critical thinking skills and are able to see or map spatial problems related to geographic literacy. Geographic literacy is not just knowledge of geography. A geoliterate individual understands the

relationships between human (political, cultural, and economic) systems and their interactions with the impacts on our environment (water, plant, and animal ecosystems). This becomes a unique concept for how to develop instruments with an understanding of geographic literacy in the HOTS category. So that high-level thinking can be applied and used as an initial stimulus and standard in the learning process at the ICBS Middle School education level in particular.

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