

# Application of Higher Order Thinking Skills in Social Education Subject at Elementary School Teacher Education State University of Medan

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**Abstract.** This study aims to describe how the Higher Order Thinking Skills (HOTS) are implemented through social studies education courses in primary school teacher education at Medan State University. The research method used is using qualitative research, where in qualitative research the research instrument is the researcher himself. Data collection techniques used include interviews, observation, documentation and learning outcomes. This research was carried out in teacher education at the Medan State University elementary school for elementary school teacher education students in the fifth semester. In this study, the validity test of triangulation data was used. The results of the study show that the implementation of Higher Order Thinking Skills (HOTS) in Social Studies education courses in Medan State University elementary school teacher education has gone well. It can be seen that the learning outcomes obtained by students indicate that they are still not optimal in developing higher-order thinking skills, students need guidance and development in higher-order thinking skills. It can be seen that there were 6 students who got the highest points on the analyzing aspect with the "distinguish" component, 1 student who got the highest points on the evaluating aspect with the "check and criticize" component, and no student who got the highest points on the evaluation aspect. innovate in the "formulate" component. This activity is carried out by identifying problems at the beginning of learning, evaluating learning by selecting the best solution that will be determined by each group and solving problems in learning by bringing up an innovation to perfect the solution to become a better solution.

**Keyword:** Higher Order Thinking Skills, Social Science

## 1 Introduction

Education in the world is a spear in changing behavior, human perspective, and forming mindsets. The quality of education is currently advancing, and increasing every year. Everyone in this world faces competition and challenges because of global developments, namely the very rapid development of science and technology. [1]. The challenge faced by humans today is starting from the existence of the latest advanced technology to develop knowledge and skills in the world of education [2]. Problems in education include technological developments that are increasingly sophisticated, higher educational curricula, and economic improvements.

The importance of planning a lesson must be prepared by a teacher as well as possible so that it can achieve a learning goal, namely achieving learning achievement by learners. According to law No. 20 of 2003 concerning the National Education System Article 39 paragraph (2) states that Educators as professionals have the task of planning and carrying out the learning process, evaluating learning outcomes, guiding and training students, and carrying out research. and community service, especially for educators who are at the level of education in tertiary institutions [4].

Research is one way to change or solve these problems. In addition, the government should strive hard in the development of education. This is in line with Khairunnisah [5] namely in education development, the state provides key elements to improve the quality of education: curriculum, strategies, models, methods and learning media. The State Council guarantees the implementation of the education system according to the National Education System Law No. 20 of 2003, which was followed by Minister of Education Decree No. 63 of 2009 concerning Education Quality Assurance, where education quality-certification is an action by an educational unit or program, local government, and the community in a systematic and integrated manner to improve people's lives through education.

University is an educational institution that prints the nation's successor. The university is also one of the places for the formation of qualified and professional human resources in their fields. This explanation is in line with [3] namely at the university level, educators are able to improve students' abilities in analyzing, evaluating, and creating something about the concept being studied, as well as understanding and applying the concept. Qualifications in quality resources are those who are able to think critically, have skills and knowledge. To form a person who is qualified in his field, the government should establish a curriculum that is adapted to the times.

Medan State University is a good educational institution in shaping the nation's generation of professionals and experts in education. The curriculum is set at state universities in the Indonesian National Qualifications Framework (KKNI). According to Maslahah [6] explaining that "KKNI is a competency qualification tiering framework that can juxtapose, equalize and integrate the fields of education and the field of job training and work experience in order to provide recognition of work competencies in accordance with the work structure in various sectors". From the IQF curriculum, it can be seen that the qualifications produced by the university will form a person who is ready for the world of work.

With the KKNI it is hoped that it will change the way of looking at a person's competence, no longer just a diploma but by looking at the nationally agreed qualifications framework as a basis for recognizing the results of a person's education broadly (formal, non-formal, or informal) that is accountable and transparent. The implementation of the KKNI goes through 8 stages, namely through establishing a Graduation Profile, Formulating Learning Outcomes, Formulating Study Material Competency, Mapping LO Study Materials, Packaging Courses, Compiling Curriculum Frameworks, Formulating Lecture Plans.

Competence is the accumulation of one's ability to carry out a measurable job description through a structured assessment, including aspects of independence and individual responsibility in the field of work. Learning Outcomes are the internalization and accumulation of knowledge, skills, attitudes, and competencies that are achieved through a structured educational process that includes a particular field of knowledge/expertise or through work experience.

Especially in the social field, the social education implemented in the university is beneficial for students to become good people in the work environment, and to interact with others. Social science education courses are subjects for elementary school teacher education

programs that can form good student personalities towards fellow humans and introduce the culture around them. According to the BSNP (National Standards Agency for Educators), the aim of the social sciences is to provide students with the following skills:

- a. Familiar with concepts related to human life and the environment;
- b. Have the basic skills of logical and critical thinking, curiosity, research, problem solving, and one's skills in life;
- c. Commitment and understanding of social and humanitarian meanings;
- d. Namely the ability to communicate, collaborate and be competent in the wider community at the local, national and global levels.

The scope of social includes sociology, geography, history, economics, law, anthropology, and psychology. BSNP (2007) explains the scope of the social studies subject includes the following aspects: (a) people, places, and the environment. (b) timing, continuity, and change. (c) social and cultural systems. (d) economic behaviour and welfare. Social studies education courses are a scourge for students and lecturers in developing higher-order thinking skills. There are findings of social studies education learning outcomes for Medan State University elementary school teacher education students who still need guidance in higher-order thinking skills.

Higher-order thinking skills are included in the cognitive level of Bloom's taxonomy of thinking. Bloom's classification of higher thinking abilities is a set of several levels of cognitive thinking, namely from low thinking to high thinking [1]. Looking at the research findings, it can be concluded that there are still some improvements in learning, especially social studies education courses in students' higher order thinking skills. The higher-order thinking skills of Medan State University elementary school teacher education students seem unstable and require special methods in forming students' ways of thinking.

Learning based on Higher Order Thinking Skills (HOTS) teaches students to develop higher-level thinking, critical, logical, reflective, metacognitive, and creative thinking skills. Higher Order Thinking Skills that require not only the ability to remember, but also other more advanced skills, such as the ability to think creatively and critically. When preparing questions, you can use different formats such as multiple choice, explanation, truth, full answer, short answer and so on. Of course, teachers need to be more creative in inspiring. When preparing questions, you can use different formats such as multiple choice, explanation, truth, full answer, short answer and so on. Of course, teachers need to be more creative in inspiring.

Science in the present century has developed in accordance with the demands of life that also develops, therefore they are required to have some abilities. Higher-order thinking is a skill that should be mastered by students. Referring to the results of the PISA (Program for International Student Assessment) study, it is shown that in general the ability of Indonesian students is very low in understanding complex information, theory, analysis and problem solving, using tools, and conducting investigations. The ability to think is an ability to process mental operations which include knowledge of perception and creation. A thinking ability is an ability to use the mind to search for meaning and understanding of something, exploring ideas, making decisions, thinking of solutions with the best considerations, and revising problems in the previous thought process. Not only that, thinking skills are abilities that are abstract in nature, cannot be seen, before being proven by concrete activities.

From the aspect of knowledge, higher order thinking skills questions generally measure aspects of metacognition as well as aspects of facts, concepts or procedures. The metacognitive aspect represents the ability to relate, interpret, solve problems (problem solving), and select problems by connecting and interpreting different concepts. Solve

strategies, find (invent) new ways, discuss (justify) and make the right decisions. From the aspect of knowledge, higher order thinking skills questions generally measure aspects of metacognition as well as aspects of facts, concepts or procedures. The metacognitive aspect represents the ability to relate, interpret, solve problems (problem solving), and select problems by connecting and interpreting different concepts. Solve strategies, find (invent) new ways, discuss (justify) and make the right decisions. Students are unknowingly taught to learn through experiments and experiments to find and solve instructor cases that are included in the university curriculum. For this reason, it is very necessary to study these subjects in several learning designs based on improving the learning process according to the curriculum. Researchers will conduct research at Medan State University using a sample of elementary school teacher education students in the fifth semester of Social Studies courses, taking into account explanations of student problems, characteristics of Social Studies courses, and how to develop higher order thinking skills. higher order thinking skills-based learning is applied to invite students to learn in a scientific process within a certain time.

## **2 Research Methods**

This study uses descriptive research with a qualitative approach. The data in this study are qualitative data, namely data in the form of a description of the findings or phenomena that occur. Sources of data in this study are unstructured observations, interviews, data in the form of student achievement obtained from triangulation, and student achievement and photo formats that have been translated into words or described with explanations. In qualitative research, the research instrument or tool is the researcher himself, with the research subjects being grade A students of primary school teacher education. in social science education courses. The data collection procedure carried out in this study used many ways so that the data obtained became valid and credible data in the study. This research was conducted at the elementary school teacher education of Medan State University.

This research was conducted in August – December 2021. In this study, the validity of the credibility test data (internal validity) was used. The credibility test, among others, is carried out by extending observations, increasing persistence in research, triangulation, discussions with colleagues, negative case analysis and member checks. The data analysis method used in this study is the method of data analysis while in the field. Data analysis in this study was carried out during data collection, and after completion of data collection within a certain period. Miles and Huberman (1984) described the activity of qualitative data analysis as being iterative and continuous until completion, resulting in data saturation. Activities in data analysis are organizing data, viewing data, and validating drawings/inferences.

## **3 Result and Discussion**

Higher order thinking skills are skills related to hard or critical real world thinking, analysis, synthesis, innovation and evaluation. Higher levels of thinking skills can be applied to solve problems in everyday life. higher order thinking skills are well thought out and innovative skills in decision making, problem solving, wisdom, observation, research, classification, hypothesis building, and cognition, introspection, and metacognition, including

adaptation [8]. Advanced thinking skills are one of the most important skills that students must have.

In the future, higher order thinking skills will become a very important student forum in the form of inference hint skills and will be adapted to the 2013 curriculum to solve everyday problems in the 21st century [4]. Higher order reasoning skills are related to Bloom's taxonomy which deals with cognitive abilities such as analysis, evaluation, and innovation. Ability to ask higher order thinking skills questions related to Bloom's classification, including analysis, evaluation, and creation [7]. Higher order thinking skills include categories of critical thinking skills that can be analysed, evaluated, and innovated in real life. Higher levels of thinking skills are very influential in solving problems in human life and making decisions.

Permendikbud No. 21 of 2016 concerning content standards for primary and secondary education explicitly states that learning outcomes in the realm of knowledge include Bloom's taxonomy which has been revised by Lorin Anderson and David consisting of the ability to: know, understand, apply, analysed, evaluate, and create. In accordance with this taxonomy, the cognitive process dimensions of higher-order thinking skills are analysing, evaluating, and creating. Questions on higher-order thinking skills generally measure abilities in the realm of analyzing, evaluating, and creating.

The following table of thinking skills was initiated by Bloom's Taxonomy of thinking:

**Table 1.** Bloom's Taxonomy Thinking Skill Level

Bloom's Taxonomy	Level
The ability to recall information stored in memory. (C1, Remembering)	<i>Lower Order Thinking Skills (LOTS)</i>
Ability to understand instructions and validate ideas and concepts being taught. (C2, Understanding)	
The ability to do things and apply concepts to certain situations. (C3, Apply)	
Ability to break concepts down into components, relate them, and fully understand concepts. (C4, Analyzing)	<i>Higher Order Thinking Skills (HOTS)</i>
The ability to judge something based on certain criteria, criteria, or benchmarks. (C5, Evaluating)	
The ability to combine elements into new holistic and expansive formats, or create something unique. (C6, Creating)	

Source :Gradini (2019).

The table shows that a person's thinking skills are divided into two parts, namely low-level thinking skills and higher-order thinking skills. Low-level skills include remembering (c1), understanding (c2), and applying (c3). While higher order thinking skills include analyzing (c4), evaluating (c5) and creating (c6) are skills possessed by someone in higher-order thinking.

Social science education courses include sociology, geography, law, history, anthropology, and psychology. The National Council for Social Studies (NCSS) formulates a detailed definition of social science as quoted by Supardi [10], social studies is an integrated social science and cultural science course to improve citizenship on school schematics, social studies that offer studies that harmonize all activities and are systematic based on fields such as anthropology, archeology, economics, geography, history, law, philosophy, political science, psychology, religion and sociology, as well as appropriate cultural science content, mathematics and science natural. Social science is part of the field of social sciences, and the

subject of social science research is always related to humans and their relationship to the natural environment and social environments.

When teaching social education, students are expected to acquire a variety of skills. Especially the ability to live in the midst of the environment or community where you live. Teaching social sciences also guides someone to be a good citizen, teaches someone to think critically, and even conveys the cultural values they need to have. There are research findings that there is a lack of higher-order thinking skills in the ideas of elementary school teacher education students.

Higher order thinking skills include three supporting aspects, namely analyzing, evaluating and innovating. These three aspects will be implemented in social science education courses. Research that has been conducted in elementary school teacher education at Medan State University, shows that the application of higher order thinking skills through social science education courses is carried out in various stages of activity. The stages of this activity include group discussions on analyzing the problems that arise in the material presented by the lecturer, which is followed by each student evaluating by providing solutions to the problems that arise, the next stage is to innovate by making a product against a predetermined solution. These activities can hone students' skills in critical thinking, find solutions with several experiments that result in trial and error, and learning will be meaningful for students.

The results obtained from data processing that have been carried out by researchers, namely in the aspect of analyzing there is an average value of 13.78 with the number of students who get 20 points namely 6 students, at point 15 there are 22 students, and at point 10 there are 17 students. In the evaluation aspect, there is an average value of 10.56 with the number of students who get 20 points, 1 student, 15 students, 35 students, 35 students, 35 students. In the aspect of innovation, there is an average score of 10.78 with the number of students who get 20 points, namely 0 students, at point 15 there are 8 students, at point 10 there are 34 students, and point 5 there are 3 students. The results of these findings indicate that there are 6 students who get the highest points on the aspect of analyzing with the "distinguish" component, 1 student who gets the highest points on the evaluating aspect with the "check and criticize" component, and no student who gets the highest points on the aspect innovate in the "formulate" component. It can be said that students' thinking skills still need guidance and development.

In these findings, there are causes for students' higher-order thinking skills still needing development, namely the need for predetermined learning time management, the learning methods used are still newly implemented, namely the case method, project-based learning and other learning methods and the desire of students to develop thinking skills. This can be seen from the students who are less able to give arguments on the social science issues given in the test.

In higher order thinking skills learning at universities, there is a need for collaboration between students and lecturers, students and students and students and the environment. To support higher-order thinking skills of special students in social science education courses, it is obtained from lecturers who are creative in providing motivation to students so that learning is in accordance with achievements. Creativity is facilitated by lecturers to students by setting learning models that are in accordance with student characteristics, understanding the methods set at the university, and being able to manage time. Research on high-order thinking skills of class XI students aims to determine higher-order thinking skills elementary teacher education students who are shown through the test questions given. Learning is carried out according to planned learning steps, namely: problem orientation, understanding problems, determining

solving strategies, and reviewing processes and results. During the learning process, the lecturer uses the observation sheet to see the learning process taking place. The observation sheet used has designed and adapted to the steps in learning. When learning, students are given problems, then they work together in groups, solve the problems given, then present the solutions or solutions obtained.

During the learning process, the researcher acts as a facilitator who guides students if there are difficulties when solving problems. Through the division of groups in learning, students are expected to be able to discuss with their friends. When discussing, students can convey ideas and opinions. To assess and decide whether an idea or opinion is true and reasonable, students are guided by predetermined criteria. Based on the observations of researchers during learning, almost all students who are categorized still need guidance in higher-order thinking skills, this is due to students who are not ready to learn. This can be seen from the lack of student initiative during learning, the time provided is not efficient, the latest learning models or methods and other things.

Factors that influence students' higher order thinking skills are: (a) students still need development in studying questions so that many student answers are wrong and inappropriate, (b) students' ability to make strategies in answering questions still needs guidance, (c) students who classified as high-order thinking skills still need development, students are less self-motivated in working on questions and tend to give up quickly, (d) some students admit that when they are at home they rarely study and repeat subject matter at home.

## 4 Conclusion

The conclusion obtained from this study is that the application of higher order thinking skills in learning social science education has been well implemented but still needs guidance and development, as can be seen from the points obtained by students, namely the aspect of analyzing, there is an average value of 13.78 for the number of students. those who get 20 points are 6 students, on point 15 there are 22 students, and on point 10 there are 17 students. In the evaluation aspect, there is an average value of 10.56 with the number of students who get 20 points, 1 student, 15 students, 35 students, 35 students, 35 students. In the aspect of innovation, there is an average score of 10.78 with the number of students who get 20 points, namely 0 students, at point 15 there are 8 students, at point 10 there are 34 students, and point 5 there are 3 students.

Thus, it can be said that students' higher order thinking skills are not maximized. Furthermore, the advantage of this research is as material for lecturers' assessment of teaching performance, to see deficiencies in learning to be followed up and to see students' thinking levels. In addition to the advantages, there are limitations in this study, namely the time in learning, the seriousness of students in learning, the application of the methods set by the university for learning and the need for models/media to be applied in learning. In this conclusion, the researcher will follow up on further research related to improving students' higher-order thinking skills through innovations that are developed.

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