International Journal of Multidisciplinary Approach Research and Science
E-ISSN 2987-226X P-ISSN 2988-0076
Volume 3 Issue 02, May 2025, Pp. 510-518
DOI: https://doi.org/10.59653/ijmars.v3i02.1581

Analysis of HOTS-Based Economic Learning: Case Study on Vocational High School Students in Minahasa Regency

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Received: 15-02-2025 *Reviewed: 21-03-2025* *Accepted: 30-04-2025*

Abstract

This study aims to analyze the implementation of Higher Order Thinking Skills (HOTS)-based economic learning for Vocational High School (SMK) students in Minahasa Regency. The focus of the study includes teachers' understanding of the HOTS concept, the learning strategies applied, the forms of evaluation used, and the factors that inhibit the implementation of HOTS in the learning process. The method used is a qualitative approach with data collection techniques through in-depth interviews, classroom observations, and documentation of evaluation questions. The results of the study indicate that most teachers do not fully understand the HOTS concept, which has an impact on the low implementation of learning strategies based on analysis, evaluation, and creation. Learning evaluation is still dominated by low cognitive level questions (C1–C2), while HOTS-based questions are still minimal. Factors inhibiting HOTS implementation include time constraints, lack of training, inadequate learning facilities, and low student learning motivation. This study recommends the need for HOTS question preparation training, provision of educational technology facilities, and systemic support from school management to encourage more contextual economic learning and be able to develop students' critical thinking skills.

Keywords: HOTS, Economic Learning, High School Students

Introduction

Facing the era of the Industrial Revolution 4.0 and the challenges of globalization, the education system is required to produce graduates who not only master knowledge, but are also able to think critically, analytically, and creatively. This need has given rise to the urgency of implementing a learning approach based on Higher Order Thinking Skills (HOTS), especially in economic subjects that are closely related to real life and rational decision making. At the

Vocational High School (SMK) level, economics learning has a strategic role in equipping students with high-level thinking skills to understand economic problems systematically and take appropriate action in complex situations. However, based on initial observations in several vocational schools in Minahasa Regency, the implementation of HOTS-based learning is still not optimal. The methods used tend to be oriented towards memorization and lectures, while the questions given do not yet lead to analytical or synthesis skills.

Theoretically, the HOTS-based learning approach is based on the constructivism theory proposed by Piaget and Vygotsky. This theory emphasizes that the learning process occurs actively when students construct their own knowledge through interaction with the environment (Santrock, 2018). The HOTS approach is very much in line with this principle because it places students as active subjects in the thinking and problem-solving process. In addition, the revision of Bloom's taxonomy by Anderson and Krathwohl (2019) states that high-level thinking skills include the top three levels, namely analyzing, evaluating, and creating. In economics learning, this ability is very important so that students not only understand economic concepts but are also able to apply and evaluate economic information in real contexts. Contextual learning theory is also a strong foundation for this approach, because HOTS emphasizes the relationship between subject matter and the reality of students' daily lives (Johnson, 2019).

Various previous studies also support the urgency of implementing HOTS-based economic learning. Research by Yuliana and Prayitno (2020) shows that economic learning designed with HOTS questions can significantly improve the critical thinking skills of vocational high school students. Similar research was conducted by Sitorus and Hasibuan (2021), who found that students were more actively involved when economic learning used a HOTS-based approach compared to conventional methods. In addition, Ningsih and Lestari (2022) found that HOTS questions in economic exams were still very minimal, and teachers still had difficulty designing evaluations that were in accordance with HOTS principles. Meanwhile, research by Rahmawati and Arifin (2023) revealed that economics teachers at the vocational high school level needed special training to apply HOTS effectively in learning. Locally, Manopo and Repi (2024) examined the challenges of implementing HOTS-based economic learning in Minahasa Regency and concluded that limitations in teacher training and lack of contextual learning resources were the main obstacles. Through this study, it is expected to obtain a clear picture of the extent to which HOTS-based economic learning has been implemented in vocational schools in Minahasa Regency, as well as the obstacles and opportunities faced by teachers and students. The results of this study can also be the basis for developing more adaptive and contextual economic education policies according to the needs of vocational school students in the area.

Literature Reviews

High Order Thinking Skill (HOTS) Concept

Higher Order Thinking Skills (HOTS) encompass analysis, evaluation, and creation skills that are at the top level of the revised Bloom's Taxonomy. HOTS-based learning aims to

develop students' capacity to think critically and creatively to solve complex problems. Ratna ((2018) stated that Higher Order Thinking Skills or higher thinking skills are thinking skills that not only require remembering skills but also require other higher skills. Helmawati (2019) argues that: thinking skills are categorized into three stages, namely Lower Other Thinking Skills (LOTS); Middle Order Thinking Skills (MOTS); Higher Order Thinking Skills (HOTS). LOTS (low-level thinking skills) is defined as the ability to know and remember basic concepts.

The characteristics of HOTS-based learning according are: 1) active in thinking, 2) formulating problems, 3) examining complex problems, 4) thinking divergently and developing ideas, 5) seeking information from various sources, 6) thinking critically and solving problems creatively, 7) thinking analytically, evaluatively, and making decisions (Ridwan Abdullah Sani (2019).

Categories in the dimensions of high-level cognitive thinking processes (HOTS)

The revision of the three cognitive dimensions in Bloom's taxonomy states that the indicators included in the High Order Thinking Skill (HOTS) category are: analyzing, evaluating, and creating, while the ability to remember, understand, and apply is the Low Order Thinking Skill (LOTS) or low-level thinking ability (Anderson & Krathwohl, 2010).

Analyzing refers to the ability to break down information into smaller parts, understand how the parts relate to each other, and recognize patterns or structures in the information. In this process, students not only understand the information as a whole, but are also able to identify key elements, distinguish facts from opinions, and connect concepts. Furthermore, **evaluating** refers to the ability to make judgments or assessments of information, ideas, or methods based on certain criteria or standards. This ability requires students to be critical in assessing the validity of arguments, the quality of work, or the effectiveness of a procedure, and to be able to justify their assessments.

Meanwhile, the highest level in the revised Bloom's Taxonomy is **creating**, which involves the ability to combine various elements into a new form that is original and valuable. The process of creating encourages students to design, develop, and produce new, innovative products or ideas. In HOTS-based learning, the activity of creating is often realized through projects, research, or the preparation of creative solutions to real problems. Taken together, these three indicators analyzing, evaluating, and creating are at the heart of developing the complex thinking skills that are so needed to face the challenges of 21st-century life**.**

Application of HOTS in Learning

In its implementation, HOTS learning usually uses innovative approaches such as Problem-Based Learning (PBL), Project-Based Learning (PjBL), and Discovery Learning. According to Hidayati, Jailani, and Kurniawan (2020), the application of the PBL model has proven effective in improving students' critical thinking skills because students are invited to identify real problems, analyze causal factors, and formulate solutions. On the other hand, PjBL encourages students to produce real products or works as a result of learning, so that their creative thinking skills also develop (Widana, 2020). Thus, these models are in line with the basic principles of HOTS, which require students to actively participate in the learning process.

One effective strategy in implementing HOTS is the use of higher order questions in the discussion or assessment process. These types of questions challenge students to assess various alternative answers, connect concepts, and build arguments based on evidence (Rahman, 2019). For example, in History lessons, teachers can ask students to analyze the impact of the Industrial Revolution on social change, instead of just memorizing the dates of events. The use of authentic assessments such as project assignments, case studies, debates, and portfolios is also highly recommended to assess the extent to which students are able to apply higher-order thinking skills in real contexts.

Research Method

This study uses a qualitative descriptive approach, with the aim of describing in depth the implementation of Higher Order Thinking Skills (HOTS)-based economic learning in Vocational High Schools (SMK) in Minahasa Regency. This approach was chosen because it is in accordance with the characteristics of the problem which is contextual and requires a deep understanding of the experiences, perceptions, and learning practices that take place in the classroom (Creswell & Poth, 2018).

The subjects in this study were Economics teachers and grade XI and XII students in several public and private vocational schools selected by purposive sampling, based on criteria such as willingness to be informants, teaching experience, and the application of HOTS-based learning. Data collection techniques were carried out through semi-structured interviews, classroom observations, and documentation in the form of learning tools and evaluation questions. Interviews were conducted to explore teachers' views and experiences in implementing the HOTS approach, while observations were used to directly observe teaching and learning interactions in the classroom and how the economics learning process took place. Documentation was used to examine the extent to which teaching tools, such as lesson plans and evaluation questions, reflected HOTS principles (Miles, Huberman, & Saldaña, 2014). Data analysis was carried out using thematic analysis techniques, which include three main stages, namely data reduction, data presentation, and drawing conclusions. This process is carried out iteratively to find the main patterns and themes that emerge in the field data (Braun & Clarke, 2019). To ensure data validity, researchers used source and method triangulation techniques, and conducted member checking with informants to confirm the findings obtained.

With this approach, it is expected that the research results can provide a comprehensive picture of how economics teachers in Minahasa Regency apply the HOTS learning approach, the obstacles they face, and its impact on the student learning process. In addition, these findings are also expected to be the basis for developing policies and teacher training in designing more innovative learning that is in accordance with the demands of the Merdeka curriculum.

Result and Discussion

Teachers' Level of Understanding of HOTS Concepts Still Varies

Based on interviews with 10 economics teachers from several vocational schools in Minahasa Regency, it was found that understanding of the HOTS concept was not evenly distributed. Some teachers understood that HOTS includes high-level thinking skills such as analyzing and evaluating, but others still considered HOTS only as a form of difficult questions. One teacher stated, "HOTS questions are those that make children think hard, questions that are tricky." This statement shows a perception that is still wrong about the essence of HOTS. In addition, from the RPP documents reviewed, only 3 out of 10 RPPs explicitly include learning objectives that support the development of HOTS. Other teachers still use objective sentences such as "students can mention ..." which only reflect a low cognitive level. This shows that in practice, understanding HOTS has not been integrated into their learning planning.

Most teachers also admitted that they had never received special training on HOTS-based learning. They relied on internet sources or personal experience to compile materials. One teacher said, "We have never been provided with special HOTS training. We only heard the term from curriculum training." This makes it clear that pedagogical competence related to HOTS is still a challenge. Interviews also indicated confusion in differentiating HOTS from complex question techniques in form. Several teachers admitted that they only modified questions by increasing the length of the reading or changing the question model into a case study without designing a high-level thinking process.

This finding is in line with Rahmawati & Arifin (2023) who showed that the majority of vocational high school teachers do not yet have a strong conceptual understanding of HOTS. In the revised Bloom's Taxonomy framework by Anderson & Krathwohl (2019), HOTS includes the three highest cognitive levels: analyzing, evaluating, and creating—not just difficult questions. The absence of systematic training is also a major factor. In the theory of pedagogical competence (Shulman, 1987), mastery of content alone is not enough without being supported by the ability to develop learning based on theory and context. Teachers need to be provided with training that integrates HOTS theory into concrete learning practices. In addition, the lack of understanding of HOTS can affect all aspects of learning, from planning, implementation, to assessment. This has an impact on the low quality of students' critical and analytical thinking processes. Students are not used to facing intellectual challenges which are actually the core of HOTS learning. For this reason, increasing HOTS literacy for teachers is urgent. Continuous professional development programs with a hands-on approach and case studies of economic learning can be a solution to bridge the gap between conceptual understanding and practice in the classroom.

Learning Strategies Are Still Limited to Lectures and Assignments

Interviews with teachers revealed that economic learning strategies are still dominated by lecture methods and individual assignments. One teacher said, "I usually explain the material first, then give assignments from the book. Sometimes there are discussions, but not routinely." Only two teachers mentioned actively using local economic case studies as a trigger for critical discussion. Classroom observations showed that student engagement was still low. Learning activities tended to be one-way. Students took notes on the material and worked on

practice questions without much interaction. In one class, students only answered when asked and did not show enthusiasm in the discussion. This indicates that there has been no application of HOTS strategies that require active student participation. Teachers also stated that obstacles in using HOTS-based strategies were due to time constraints and the amount of material. “If I use case studies, it takes a long time. I’m afraid I won’t finish the material,” said one teacher. This shows the tension between the demands of the curriculum and the desire to implement meaningful learning. Teachers also mentioned low student motivation. “Students prefer to finish quickly, rarely want to think deeply.” This is an additional obstacle that makes teachers tend to return to the lecture method as a quick way to complete learning.

This condition is in line with the findings of Sitorus & Hasibuan (2021), that economics teachers in vocational schools more often use expository methods than active strategies. In fact, strategies such as problem-based learning and project-based learning have proven effective in increasing HOTS, as stated in the constructivist approach by Santrock (2018). In active learning theory, students need to be positioned as subjects who build their own knowledge through interaction with problems and their environment. The lecture method only focuses on knowledge transfer and does not provide space for exploration of thinking. In addition, the heavy curriculum load is a inhibiting factor in implementing HOTS strategies. However, thematic and contextual approaches can actually be a solution. Economic material can be linked to relevant local issues, such as MSMEs in Minahasa or regional inflation, to stimulate students' critical thinking. The strategic recommendation is to simplify the RPP with HOTS integration in concise and realistic learning scenarios. Schools also need to encourage collaboration between teachers to design HOTS strategies that are practical and appropriate to the context of each class.

Evaluation Questions Are Still Dominated by Low Cognitive Levels

From an analysis of 10 sets of evaluation questions for SMK economics teachers in Minahasa Regency, it was found that around 76% of the questions were at the remembering (C1) and understanding (C2) levels. Only 2 teachers included questions based on case studies or graphs that required analysis or evaluation. One teacher stated, "I rarely make questions like economic graphs because students have difficulty understanding them."

The most commonly used question format is multiple choice with one correct answer, while descriptive questions are only used in semester exams. From interviews, most teachers stated that they made their own questions without specific references from HOTS guidelines. One teacher said, "I make my questions based on books and previous exercises. It rarely gets to the analysis level." When asked further, teachers admitted that they had difficulty compiling questions that required students to think highly because they did not know how to adjust to the curriculum and exam time. This indicates that there is not enough technical skill in compiling questions that require analysis, evaluation, or synthesis of economic information. Students also confirmed that the questions they faced were mostly memorization. One student said, “On exams, what usually comes out are definitions, formulas, and examples from books. There are rarely any questions that require deep thinking.” This shows that learning and evaluation have not consistently encouraged high-level thinking skills.

This finding is in line with research by Ningsih & Lestari (2022) which states that exam questions in vocational schools are still dominated by levels C1 and C2 in Bloom's Taxonomy, while HOTS questions (C4–C6) are only around 20%. This is a big challenge because HOTS requires students to be able to solve problems and apply knowledge in real contexts. According to the theory of authentic evaluation by Wiggins (2011), assessments must assess how students use their knowledge in real situations, not just remember information. HOTS-based questions should encourage students to interpret data, make decisions, and construct economic arguments based on specific contexts. Teachers need to understand that compiling HOTS questions does not have to be complicated. Simple questions can become HOTS if they are designed to demand reasoning and problem solving. For example, questions that ask students to compare two fiscal policies and assess their impact on local MSMEs. It is necessary to conduct HOTS-based question compilation training and provide question banks by the education office or MGMP. Thus, teachers can be assisted technically and at the same time be able to improve the quality of evaluation to be more in line with the characteristics of 21st century learning.

Inhibiting Factors for the Implementation of HOTS Learning

Interviews with teachers revealed several inhibiting factors for the implementation of HOTS learning, including time constraints, teacher administrative burden, and low student readiness. One teacher said, "If there are too many questions and answers or discussions, the material will not be completed. Even though there are curriculum targets". In addition, teachers complained about the lack of training and supporting facilities. Some schools do not have projectors or stable internet access, making contextual learning difficult. One teacher said, "We want to use videos or case studies from the news, but the equipment doesn't support it." Obstacles also come from students who are less motivated. Many vocational high school students tend to be pragmatic and oriented towards work after graduating, so they prefer practical materials and do not really like discussions or complex assignments. "Students like those who know the answer right away. If there is a debate or discussion, everyone is silent," said one teacher. Finally, school management support is not optimal. Teacher competency development programs or innovative learning are rarely carried out regularly. Teachers feel they do not have enough time and space to try new approaches because they have to focus on administration and routine reports.

These factors reflect structural and cultural conditions that hinder the transformation of HOTS-based learning. According to Bronfenbrenner (in Santrock, 2018), the quality of learning is influenced by the dynamic relationship between individuals (teachers and students) and the social context (school, family, policy). A study by Manopo & Repi (2024) stated that structural barriers such as lack of infrastructure, lack of support for school policies, and low teacher reflective culture are the main obstacles to the implementation of HOTS in vocational schools. This means that interventions must be carried out not only on individual teachers, but also on the school system.

The theory of learning motivation also explains that students who are less involved in complex learning may not have sufficient intrinsic incentives. Teachers need to design activities that are relevant to the world of work or the student's environment to increase their

participation in HOTS-based learning (Ryan & Deci, 2020). The suggested solutions include the formation of a teacher learning community, improving educational technology facilities, and adjusting the administrative burden so that teachers have room to innovate. With systemic support, HOTS-based economic learning in vocational schools can be more optimal and contextual.

Conclusion

Based on the results of the study on the Analysis of HOTS-Based Economic Learning for Vocational High School Students in Minahasa Regency, it can be concluded that the implementation of Higher Order Thinking Skills (HOTS)-based learning still faces various significant challenges. In accordance with the objectives of the study, namely to determine teacher understanding, learning strategies, forms of evaluation, and inhibiting factors in the implementation of HOTS, it was found that most teachers do not have a complete understanding of the HOTS concept, which has an impact on learning planning and the preparation of evaluation questions that are still dominant at the low cognitive level. Economic learning strategies also tend to be traditional and have not fully encouraged students' critical and analytical thinking processes. The evaluation questions used are still limited to remembering and understanding, so they have not been able to measure students' high-level thinking skills optimally. The main inhibiting factors include limited time, facilities, teacher training, and low student motivation. Thus, to realize effective HOTS-based economic learning in vocational high schools, it is necessary to strengthen teacher capacity, improve school support systems, and learn more contextual strategies that are oriented towards developing students' high-level thinking skills..

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