The Effectiveness of Contextual Teaching and Learning to Increase Students' Self-Confidence and Higher-Order Thinking Skills in Economics Subject at SMA Negeri 1 Demak

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Abstract:

This study examines the impact of the contextual teaching and learning (CTL) model in increasing students' self-confidence and higher-order thinking skills (HOTS) in Economics at SMA Negeri 1 Demak. Addressing challenges such as low self-confidence and limited critical thinking often associated with traditional teacher-centered methods, the research compares the CTL approach with Problem-Based Learning (PBL). Using a quasi-experimental design with a nonequivalent control group, the study involved 72 eleventh-grade students who were equally divided into an experimental group (employing CTL) and a control group (using PBL). Data was collected through direct observation of self-confidence indicators as well as pretest-posttest tests to measure HOTS based on aspects of analysis, evaluation, and creation. Statistical analysis, including observation sheet results, N-Gain score calculations, and Independent Sample t-Test, revealed significant improvements in both self-confidence and higher-order thinking skills among students in the CTL group compared to those in the control group. The findings indicate that the CTL model not only increases cognitive engagement but also fosters a more interactive and supportive classroom environment, ultimately enhancing academic performance in Economics. These findings support the adoption of the CTL model as an effective learning strategy in improving Economics subject outcomes at the high school level.

Keywords: Contextual Teaching and Learning, Self-Confidence, Higher-Order Thinking Skills, Economics Subject.

Introduction

Education plays a crucial role in a nation's progress, serving as both a basic human right and a key driver of sustainable development (Mustofa et al., 2024). In Indonesia, improving education is essential to enhance human resources and remain competitive in the global era (Puspa et al., 2023). Learning, as a core component of education, involves behavioral changes

-that engage students, teachers, instructional methods, and the learning environment to achieve educational goals (Nainggolan et al., 2022).

However, low student self-confidence remains a persistent challenge. Many students feel incapable of completing tasks, are pessimistic, and show anxiety or reluctance when participating in (Bakhtiar et al., 2022). According to the Trends in International Mathematics and Science Study, only 30% of Indonesian students report high confidence levels (W. Sari et al., 2021). This is often linked to low motivation and fear of judgment when expressing ideas (Kristina S et al., 2023), which ultimately affects students' participation, academic success, and future development (Wijayanti & Nusantoro, 2022).

Another critical issue is the underdevelopment of higher-order thinking skills (HOTS), which results from limited teacher competence, a lack of HOTS-oriented learning tools, and minimal impact on students' critical thinking abilities (Fatra et al., 2022). Students' HOTS are further affected by difficulties in problem comprehension, poor memory retention, lack of strategic practice, a tendency to give up easily, unconducive classroom environments, and irregular study habits at home (Septianingsih et al., 2022). Given their importance in addressing future challenges, informed decision-making, and complex problem-solving, HOTS must be introduced and systematically taught to students (Ayumniyya & Setyarsih, 2021).

Similar issues are evident in economics subjects at the Senior High School (SMA) level, where teacher-centered approaches, such as monotonous lectures, remain prevalent due to the theoretical orientation of the subject (Ritonga, 2021). As a result, students often struggle to understand the material, show low enthusiasm, become passive, and lack motivation, particularly when confronted with contextual challenges (Setyawan, 2023). This situation highlights the need for a more effective, student-centered learning model that aligns with 21st-century education by promoting interactive, holistic learning and the development of essential skills (Azis et al., 2022). Contextual Teaching and Learning (CTL) is an approach that helps students relate academic material to real-life contexts, fostering deeper understanding (Hyun et al., 2020). CTL encourages active participation and creates meaningful learning experiences (Halawa & Darmawan Harefa, 2024). It also promotes critical thinking by linking concepts to real-world phenomena (Firdausy et al., 2020). Despite its advantages, the use of CTL in Economics classes, such as at SMA Negeri 1 Demak, remains limited. CTL can address these issues by encouraging active learning and supporting the development of critical, analytical, and creative thinking skills (Nasution & Yusnaldi, 2024).

Preliminary observations and interviews with teachers at SMA Negeri 1 Demak reveal that students still exhibit low self-confidence and underdeveloped HOTS, as seen in Semester Assessment (PAS) scores of 41.25 (class XI-11) and 36.14 (class XI-12). Although the problem-based learning (PBL)

model has been introduced, its implementation is often suboptimal. This situation highlights the need to explore alternative learning models that are more effective in addressing students' cognitive and affective development. Although PBL is widely used, the effectiveness of the CTL model in improving self-confidence and HOTS especially in comparison to PBL methods has not been widely studied in the context of high school economics learning. Therefore, this study aims to evaluate the effectiveness of the CTL model in enhancing students' self-confidence and HOTS in economics learning at SMA Negeri 1 Demak. The findings are expected to contribute to the development of innovative, student-centered learning strategies that better address students' needs.

Literature Review

Research Theory

This study adopts the constructivist theory developed by Jean Piaget. Piaget's constructivist theory emphasizes that knowledge is actively constructed by individuals through experience and interaction with their environment, rather than being passively transferred by teachers (Baharuddin & Wahyuni, 2007). Learning is an internal activity that involves organizing and adapting cognitive structures so that new experiences can be meaningfully understood. Piaget identified two key mechanisms: organization, which involves grouping and connecting new information with existing schemata, and adaptation, which includes assimilation and accommodation (Baharuddin & Wahyuni, 2007). Assimilation occurs when new information is incorporated into existing schemas, while accommodation involves modifying or creating new schemas when the information does not fit. The interaction between assimilation and accommodation leads to a state of equilibrium, and when disequilibrium arises, accommodation is activated to restore cognitive stability.

According to Piaget, cognitive development progresses through four stages sensorimotor, pre-operational, concrete operational, and formal operational—with the formal operational stage enabling abstract and logical thinking, which is a prerequisite for Higher-Order Thinking Skills (HOTS) (Baharuddin & Wahyuni, 2007). One of the learning models based on constructivism is Contextual Teaching and Learning (Baharuddin & Wahyuni, 2007). In economics learning based on the Contextual Teaching and Learning (CTL) model, students' active engagement through real-life contexts, direct experiences, and reflection supports the independent construction of knowledge (Lotulung et al., 2018). Various studies have shown that CTL improves academic achievement, fosters positive attitudes, enhances self-

confidence, and develops students' critical thinking skills in economics subjects (Nisa' et al., 2024; Mahmuti et al., 2025).

Previous Research

Previous studies have yielded conflicting results regarding the effectiveness of the Contextual Teaching and Learning (CTL) approach. For instance, Dewi et al. (2024) reported that CTL does not effectively enhance student self-confidence, while Ningsih et al. (2023) found that CTL is not superior to other learning models in improving higher-order thinking skills (HOTS). Overall, these studies observed no significant differences in critical thinking skills among students using CTL, Problem-Based Learning (PBL), and conventional teaching methods.

However, findings by Simamora et al. (2020) support this study by demonstrating that the n Contextual Teaching and Learning (CTL) approach effectively enhances student self-confidence. Furthermore, research by Samsudin et al. (2023) confirmed that the CTL model positively impacts student learning outcomes. This approach emphasizes meaningful, experiential learning, which facilitates a deeper understanding of the material. Moreover, several studies have shown that students taught through CTL achieve higher academic performance compared to those taught using PBL or traditional methods.

Contextual Teaching and Learning

Contextual Teaching and Learning (CTL) is an educational framework rooted in the idea that learners are more willing and able to grasp subject matter when they comprehend the underlying meaning of the lesson. According to Hajerina (2018), CTL links academic content to real-life situations, encouraging students to apply their knowledge to problem-solving both individually and collaboratively through hands-on experiences that promote holistic development across cognitive, affective, and psychomotor domains. Ruwaidah (2022) similarly notes that CTL enables teachers to align lesson content with the real-world experiences of students, prompting them to connect their learning with everyday applications. Additionally, as emphasized by Karim (2017), CTL advocates for the creation of a multifaceted learning environment that integrates classrooms, laboratories, and the broader community by merging social, cultural, physical, and psychological experiences, thereby helping students translate abstract concepts into practical real-world applications.

As stated by the Ministry of National Education (Karim, 2017), the Contextual Teaching and Learning (CTL) approach comprises seven interdependent components—namely, constructivism, inquiry,

questioning, learning community, modeling, reflection, and authentic assessment. These are further delineated as the seven core elements of CTL: (1) defining the real context; (2) linking student experiences with learning; (3) clarifying the learning concepts; (4) applying concepts in real-world situations; (5) reflecting on and discussing learning outcomes; (6) evaluating these outcomes; and (7) developing follow-up measures to enhance the learning process (Leuwol et al., 2023).

Self-Confidence

Self-confidence is an important factor that provides a strong motivation to face challenges, making it the main support in achieving goals, especially in the learning process. According to Mardika & Hasanah, (2020) self-confidence is an individual's self-confidence in himself, which is reflected through a confident attitude towards his abilities, being optimistic, and daring to face existing challenges. Meanwhile, according to Gusmery & Susanti, (2023) Self-confidence is an attitude that makes a person not afraid to act, feel free to do what they like, responsible, friendly, respect others, enthusiastic about achievement, and be aware of their strengths and weaknesses. Self-confidence makes a person feel confident and successful in completing the task at hand (Yuliati & Susianna, 2023).

Adywibowo (Mardika & Hasanah, 2020) identifies self-confidence indicators as the ability to be independent, communicate effectively with others, embrace new tasks or challenges, and express emotions appropriately. In contrast, the Ministry of Education and Culture (Lestari et al., 2022) defines self-confidence through attributes such as expressing opinions or performing activities without hesitation, making quick decisions, maintaining resilience, exhibiting confident behavior, presenting in front of the class with assurance, and actively participating by sharing opinions, asking questions, or providing answers.

Higher-Order Thinking Skills

The development of higher-order thinking skills is an indispensable asset for student success. Widyastuti (Desiriah & Setyarsih, 2021) argues that higher-order thinking ability (HOTS) extends beyond mere memorization; it requires students to synthesize and process diverse information at an advanced cognitive level to analyze and generate new ideas. HOTS encompasses critical thinking, creative thinking, and problem-solving skills (Irawati, 2018), and as Syahri & Ahyan (2021) assert, these skills demand not only the capacity to recall information but also the ability to think both creatively and critically.

According to Adi W. Gunawan (Syahri & Ahyana, 2021), indicators used to measure higher-level thinking skills can be observed through cognitive aspects of students, such as the level of analysis,

synthesis, and evaluation. In support of this perspective, Karthworl and Anderson, as outlined in the revised Bloom's Taxonomy, delineated three cognitive levels for assessing HOTS: C4 (analysis), C5 (evaluation), and C6 (creation) (Liana et al., 2018). Conversely, Schraw posits that HOTS is comprised of four key components: reasoning skills, argumentation skills, problem-solving and critical thinking skills, and metacognition (Serevina et al., 2019).

Research Hypothesis

H1: The implementation of the Contextual Teaching and Learning (CTL) model more effectively enhances students' self-confidence in the Economics subject at SMA Negeri 1 Demak than the Problem-Based Learning (PBL) approach.

H2: The implementation of the Contextual Teaching and Learning (CTL) model results in greater improvements in students' higher-order thinking skills (HOTS) in the Economics subject at SMA Negeri 1 Demak compared to the Problem-Based Learning (PBL) approach.

Research Methodology

This research was conducted at SMA Negeri 1 Demak during the even semester in February 2025. The population consisted of all eleventh-grade students enrolled in the Economics subject, totaling 72 students. The study employed a total sampling technique, meaning that the entire population was included as the sample. The sample comprised 36 students from class XI-11 as the experimental group and 36 students from class XI-12 as the control group. The selection of classes XI-11 and XI-12 was based on their comparable initial characteristics, such as previous report card scores, socio-economic backgrounds, and academic input, as identified through school data and consultation with the economics teacher. Data were analyzed using SPSS Statistics 25.

This study applied a quasi-experimental design using a nonequivalent control group format, involving both pretest and posttest measures. Prior to the intervention, both groups received the same pretest questions. The experimental group was then taught using the Contextual Teaching and Learning (CTL) model, while the control group received instruction through the Problem Based Learning (PBL) model. PBL was chosen because it is commonly applied in economic learning at the school. In addition, in the Merdeka Curriculum, the application of PBL is important because it is a learner-centered learning model and is in line with the principles of the Merdeka Curriculum (Darud et al., 2024). So that it becomes a relevant point of comparison. Both groups utilized Student Worksheets (LKPD) containing various types of problems, and the teaching process followed the respective frameworks of each instructional model.

At the end of the intervention, the same posttest was administered to assess students' improvement in learning outcomes.

To control potential sources of bias, the researcher ensured that both classes were taught by teachers with equivalent experience and teaching competence. Detailed instructional guidelines were also provided to ensure that each model was implemented as intended. To strengthen the quantitative findings, the research was supported by qualitative data in the form of teacher interviews. The interviews revealed that most students exhibited low self-confidence during learning activities, and their higher-order thinking skills had not yet developed optimally. These findings supported the need for innovative approaches through contextual and meaningful learning models.

Data on students' self-confidence were collected through observation sheets completed by the researcher and teacher during classroom activities. The observation sheets contained five indicators: the ability to express opinions or participate without hesitation, the ability to make decisions quickly, resilience against discouragement, willingness to present in front of the class, and the confidence to ask, answer, or express opinions. Meanwhile, students' higher-order thinking skills were assessed through multiple-choice tests administered during the pretest and posttest. These tests measured three indicators aligned with Bloom's taxonomy: analysis (C4), evaluation (C5), and creation (C6).

The analysis technique of the self-confidence observation assessment sheet is carried out by computing the mean value of each indicator in the form of a percentage which is then classified into four criteria, as follows:

Table 1. Self-Confidence Criteria

Score (%)	**Criteria**
80-100	Excellent
70-79	Good
60-69	Enough
≤ 60	Less

Initially, the pretest and posttest instruments used to assess higher-order thinking skills were evaluated to determine their validity, reliability, difficulty level, and discriminating power. Because it uses total sampling, samples are needed to test the pretest and posttest question instruments. Then SMA N 1 Jekulo Kudus was chosen which has almost the same student characteristics as SMA N 1 Demak after observation. The instrument test was carried out in class XI-F03 SMA N 1 Jekulo Kudus with a total of 35 students. Both the pretest and posttest each consisted of 20 questions.

After the instrument test, the validity test results indicated that both the pretest and posttest comprised 17 valid questions. Subsequently, the reliability test yielded a Cronbach's Alpha value exceeding 0.70. Namely for the pretest questions of 0.704 and for the posttest questions of 0.752, so that the question instruments were declared reliable. Next, the difficulty levels of both the pretest and posttest questions were assessed. 19 questions with medium difficulty and 1 question with easy difficulty were obtained. Additionally, the outcomes of the question differentiation test were recorded. For the pretest questions, 3 items of poor questions, 11 items of satisfactory questions, and 6 items of good questions were obtained. As for the posttest questions, 1 item of poor questions, 11 items of satisfactory questions, and 8 items of good questions were obtained.

Furthermore, the test data were analyzed using N-Gain calculations, along with normality and homogeneity tests, to evaluate improvements in higher-order thinking skills as determined by the Independent Sample t-Test. The N-Gain analysis technique is presented in the following table:

Table 2. N-Gain Score Distribution

Score N-Gain	Category
$g > 0.7$	High
$0.3 \leq g \leq 0.7$	Medium
$g < 0.3$	Low

Source: Meltzer (Khotimah et al., 2022)

Results and Discussions

Prerequisite Test Analysis Results

The Kolmogorov-Smirnov normality test results indicate that in the experimental class, the student self-confidence instrument had a significance value of 0.186 (> 0.05) and the post-test instrument had a significance value of 0.200 (> 0.05), both suggesting that the research data follow a normal distribution. Similarly, in the control class, the student self-confidence instrument yielded a significance value of 0.200 (> 0.05), and the post-test instrument showed a significance value of 0.190 (> 0.05), confirming that the data residuals are normally distributed. Furthermore, Levene's homogeneity test produced significance values of 0.657 for the post-test instrument and 0.076 for the student self-confidence instrument, both exceeding 0.05, indicating that the research data are homogeneous.

According to Table 3, the hypothesis test for the self-confidence variable revealed that the t-count value (3.811) exceeded the t-table value (1.994), with a significance value (2-tailed) of 0.000 (< 0.05). This result supports the acceptance of hypothesis (H1), leading to the conclusion that the CTL model is more

effective at enhancing student self-confidence than the PBL model. Additionally, the hypothesis test for the higher-order thinking skills variable showed that the t-count value (2.224) exceeded the t-table value (1.994), with a significance value (2-tailed) of 0.028 (< 0.05). These findings confirm the acceptance of hypothesis (H2), indicating that the CTL model is more effective in improving students' higher-order thinking skills compared to the PBL model.

Table 3. Results from the Independent Sample t-Test Data Analysis

Variable	t-count	t-Test	
		df	Sig (2 tailed)
Self-Confidence	3,811	70	0,000
Higher Order Thinking Skills	2,224	70	0,028

Source: Data Processing, 2025

Assessing the Impact of Contextual Teaching and Learning on Student's Self-Confidence

The analysis of the self-confidence observation assessment sheets reveals that the contextual teaching and learning approach significantly boosts student self-confidence, thereby supporting the previously stated hypothesis. The data are presented in the table below:

Table 4. Results from the Self-Confidence Observation Assessment

Indicator	Experimental Class		Control Class	
	Score (%)	Criterion	Score (%)	Criterion
Opinion or carry out activities without hesitation	81	Excellent	65	Enough
Able to make decisions quickly	74	Good	63	Enough
Not easily discouraged	79	Good	61	Enough
Dare to present in front of the class	77	Good	64	Enough
Dare to speak up, ask questions, or answer questions	84	Excellent	72	Good
Overall Average	79	Good	65	Enough

Source: Data Processing, 2025

Based on observations of student self-confidence, the experimental class using the Contextual Teaching and Learning (CTL) model exhibited higher self-confidence than the control class, which used the Problem-Based Learning (PBL) model. Specifically, the experimental class achieved an average self-confidence score of 79% (good), while the control class scored 65% (enough). These results indicate that the CTL model is more effective in boosting student self-confidence.

In the indicator opinion or carry out activities without hesitation, students in the experimental group scored 81% (excellent), while those in the control group scored 65% (enough). These findings demonstrate that the contextual learning approach of the CTL model effectively boosts student confidence in expressing their opinions and taking action without hesitation (Dewi et al., 2024). This effect is attributed to CTL's ability to link learning materials to students' real-life experiences, thereby making the content more relatable and fostering greater self-assurance in sharing their ideas.

The indicator able to make decisions quickly reveals a significant difference between the two groups. The experimental class achieved a score of 74% (good), whereas the control class scored only 63% (enough). In CTL, students are regularly exposed to real-world scenarios that require them to make decisions in familiar contexts (Sumianti & Iskandar, 2024). This experience helps train them to think swiftly and make decisions with greater self-confidence. Regarding the indicator not easily discouraged, the experimental class achieved a score of 79% (good), whereas the control class scored only 61% (enough). This disparity indicates that students exposed to the CTL model exhibit greater mental resilience and perseverance compared to those in the control class. CTL fosters active engagement in the learning process through strategies such as group discussions and reflective practices (Imamuddin, 2022), which in turn help students build self-confidence and resilience when facing academic challenges.

The presentation in front of the class indicator also favored the experimental group over the control group. In the experimental class, students achieved a score of 77% (good), whereas those in the control class only reached 64% (enough). These results suggest that the CTL model more effectively encourages students to speak confidently in front of the class. In CTL-based learning, students are frequently given opportunities to express their ideas through presentations, discussions, or demonstrations. This active engagement creates real-life experiences that help students overcome nervousness and build greater self-confidence in public speaking.

The last indicator, dare to speak up, ask questions, or answer questions, yielded the highest scores among all measures. In the experimental class, this indicator reached 84% (excellent), whereas the control class scored 72% (good). Although the control group performed relatively well on other indicators, students in the experimental class demonstrated greater courage in posing questions, responding to teacher inquiries, and sharing their opinions. This outcome can be attributed to the CTL approach, which emphasizes active student engagement by encouraging critical thinking and connecting academic content with personal experiences (Fiandari & Wijayanti, 2024). This interactive learning environment fosters an atmosphere that supports and enhances students' verbal participation.

Contextual Teaching and Learning (CTL) model has proven effective in enhancing students' confidence in learning activities. This is demonstrated by Qudsyi et al. (2018), who found an increase of up to 20 points in students' self-efficacy following the implementation of CTL. This approach aligns with Jean Piaget's constructivist theory, which posits that knowledge and self-belief are constructed through meaningful experiences that are actively processed by learners (Baharuddin & Wahyuni, 2007). CTL facilitates the processes of organization (assimilation) and adaptation (accommodation) within students' schemata, enabling them to reorganize their cognitive structures and experience success in learning tasks (Bada & Olusegun, 2015). Observations of students' motivation and confidence in this study demonstrate a significant increase after the implementation of CTL, supporting the notion that contextual learning can foster self-confidence through active engagement and self-reflection (Danis et al., 2017).

The findings of this study align with Simamora et al. (2020), who found that the Contextual Teaching and Learning (CTL) approach effectively enhances students' self-confidence. Similarly, Naisa et al. (2024) reported that the CTL model boosts self-confidence by linking academic content to students' daily lives, thereby making learning more engaging and enjoyable while promoting collaborative knowledge building. Consequently, adopting an appropriate learning model like CTL can significantly uplift students' self-confidence.

Assessing the Impact of Contextual Teaching and Learning on Student's Higher-Order Thinking Skills

Results from the N-Gain score test demonstrate that the contextual teaching and learning approach effectively enhances higher-order thinking skills (HOTS), thereby supporting the previously stated hypothesis. The corresponding data is presented in the table below:

Table 5. Pretest and Posttest Results from the N-Gain Data Analysis

Class	Average Score		Average N-Gain Score	Category
	Pretest	Posttest		
Experiment	35,50	57,83	0,3471	Medium
Control	35,19	48,92	0,2117	Low

Source: Data Processing, 2025

The N-gain score test indicates that the experimental class using the Contextual Teaching and Learning (CTL) model achieved an average score of 0.3471, which falls into the medium category. In contrast, the control class employing the Problem-Based Learning (PBL) model obtained an average score of 0.2117, placing them in the low category. These findings suggest that the CTL model is more effective in enhancing students' higher-order thinking skills (HOTS).

Table 6. Results from Each Higher-Order Thinking Skills (HOTS) Indicator

Indicator	Experimental Class				Control Class			
	Average Score			Category	Average Score			Category
	Pretest	Posttest	N-Gain		Pretest	Posttest	N-Gain	
C4	31	52	0,2767	Low	27	40	0,1532	Low
C5	42	63	0,3431	Medium	39	58	0,2699	Low
C6	38	67	0,3945	Medium	47	60	0,3489	Medium

Source: Data Processing, 2025

According to the table, the CTL model is more effective than the PBL model in enhancing higher-order thinking skills (HOTS). This is evidenced by the improvement from pretest to posttest scores and the increased N-Gain values across all HOTS indicators—analyzing (C4), evaluating (C5), and creating (C6).

In the C4 (Analyzing) indicator, the experimental class using the CTL model improved from a pretest score of 31 to a posttest score of 52, yielding an N-Gain of 0.2767 (low). In contrast, the control class using the PBL model increased from 27 to 40, with an N-Gain of 0.1532 (low). These results suggest that the CTL model is more effective in enhancing students' analytical skills. This may be attributed to its constructivist approach, which enables students to develop their own understanding through authentic learning experiences (Femisha & Madio, 2021), and its emphasis on questioning, which promotes critical thinking during problem analysis (Hendaryono, 2023).

For the C5 (Evaluating) indicator, the experimental class improved from a pretest score of 42 to a posttest score of 63, yielding an N-Gain of 0.3431 (categorized as medium). In contrast, the control class increased from 39 to 58, with an N-Gain of 0.2699, which remains in the low category. This greater improvement in the experimental group can be attributed to the CTL model's inquiry and modeling strategies, enabling students to evaluate concepts or problems through more concrete and contextualized learning experiences (Putri et al., 2024). And for the C6 (Creating) indicator, the experimental class showed a significant improvement, with scores rising from 38 on the pretest to 67 on the posttest, resulting in an N-Gain of 0.3945 (categorized as medium). In comparison, the control class improved from 47 to 60, yielding an N-Gain of 0.3489, which also falls into the medium category. Although both classes are classified as medium, the experimental group achieved a higher increase. This superior performance is likely due to the CTL model’s emphasis on fostering a learning community and reflective practice, which offers students opportunities to collaborate in creating solutions or products based on their accumulated understanding (Hamid et al., 2024).

The application of Contextual Teaching and Learning (CTL) has been effective in improving higher-order thinking skills (HOTS), with N-Gain scores showing significant improvements in the domains of analysis, evaluation, and creation. This finding is consistent with recent research that has developed CTL-based models aimed at enhancing students' HOTS through contextual worksheets and real-world problems, thereby promoting complex problem-solving and critical thinking (Septripiyani et al., 2025). From a constructivist perspective, HOTS develop when students actively construct new meanings through the interaction between their existing schemata and the learning context, resulting in deeper and more applicable understanding (Baharuddin & Wahyuni, 2007).

These findings align with Samsudin et al. (2023), who report that the Contextual Teaching and Learning (CTL) model effectively enhances student learning outcomes. By emphasizing meaningful, real-life experiences, CTL facilitates better comprehension of the material. Research indicates that outcomes achieved with CTL are superior to those obtained through Problem-Based Learning (PBL) or conventional methods, and that CTL is particularly effective in fostering learning creativity and improving science learning outcomes. Similarly, Zaidah et al. (2025) confirm that CTL enhances students' Higher Order Thinking Skills (HOTS) by engaging them in real-world contexts and promoting active, critical thinking. Moreover, Agustina et al. (2019) found that CTL helps learners connect theoretical knowledge to practical applications, thereby cultivating higher-order thinking skills in problem-solving.

The findings of this study indicate that Contextual Teaching and Learning (CTL) effectively enhances both students' self-confidence and higher-order thinking skills (HOTS). This result is consistent with Simbolon et al. (2022), who developed a HOTS-based learning tool within the CTL framework to boost student self-confidence and critical thinking skills. The tool comprises lesson plans, student textbooks, and LKPD materials, along with assessments for critical thinking and self-confidence.

The results of this study have important implications for educators and curriculum developers, indicating that the integration of the CTL (Contextual Teaching and Learning) strategy can create a more engaging and effective learning environment, as well as better prepare students to face the complexities of real-world challenges (Mahmuti et al., 2025). Integrating CTL into curriculum design enables the connection of academic knowledge with students' real-life contexts, thereby enhancing motivation and learning retention. A study by Mitani (2021) noted that the use of real-world problems and open discussions in CTL significantly improves students' higher-order thinking skills (HOTS). Recent research at SMAN 1 Masbagik showed that the CTL model supported by video increased students' learning outcomes and motivation by up to 25% compared to conventional methods (Sari et al., 2024).

Hudson & Whisler (2007) emphasize that CTL encompasses core elements such as constructivism, inquiry, modeling, and authentic assessment, all of which must be integrated into the curriculum to ensure its relevance to real-world needs. Evaluation of the implementation of the Merdeka Curriculum has shown that the application of CTL across various subjects, including economics, enhances student engagement by contextualizing learning materials to local and social realities (Mu'aziyah & Isnawati, 2023). Furthermore, research conducted by Yulinda (2016) has demonstrated that CTL significantly improves students' confidence in solving mathematical problems, an outcome particularly relevant to economics learning, especially in the topic of wage systems. Additional evidence indicates that integrating inquiry and reflection within CTL facilitates the development of higher-order thinking skills (HOTS) through the adaptation of students' schemata to real-life contexts (Yasin et al., 2023). Therefore, the findings of this study encourage educators and curriculum developers to adopt CTL as a primary strategy to prepare a resilient and adaptive generation of 21st-century learners capable of navigating complex real-world challenges (Mahmuti et al., 2025).

Conclusion

In conclusion, this study has demonstrated that the implementation of the Contextual Teaching and Learning (CTL) model significantly enhances students' self-confidence and higher-order thinking skills (HOTS) in the economics subject at SMA Negeri 1 Demak, as evidenced by marked improvements in pretest and posttest scores compared to the Problem-Based Learning (PBL) approach. The findings indicate that CTL's emphasis on real-life experiences, collaborative learning, and reflective practices not only deepens students' conceptual understanding but also cultivates critical, analytical, and creative thinking abilities. These results have important implications for educators and curriculum developers, suggesting that the integration of CTL strategies can lead to more engaging and effective learning environments that better prepare students for complex real-world challenges. However, the study is limited by its focus on a single school and subject area, as well as by the constraints of a quasi-experimental design, which may affect the generalizability of the outcomes. Future research should broaden the scope to include multiple educational contexts and disciplines, explore the long-term effects of CTL on various academic and behavioral outcomes, and consider additional variables that may influence the success of this teaching model, thereby providing a more comprehensive understanding of its potential to transform educational practices.

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