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Authentic Assessment in Higher Education to Increase Critical Thinking and Develop Metacognitive Awareness

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Abstract

This study highlights the effectiveness of authentic assessment in evaluating higher-order cognitive competencies, including problem-solving, reasoning, analytical thinking, creativity, and the development of metacognitive awareness. Through authentic assessment, students can apply their knowledge and skills in real-world contexts by constructing responses based on critical analysis, identifying cause-and-effect relationships with supporting evidence, and solving problems through logical reasoning. The research employed a descriptive qualitative analysis method, utilizing tests, surveys, and document analysis as instruments. The study involved 40 fifth-semester Indonesian students majoring in English and enrolled in an Advanced Writing course. Authentic assessment was implemented in the context of expository writing, specifically problem-solution essays, with a focus on (1) formulating relevant and critical issues and arguments, (2) establishing clear and logical connections between ideas, and (3) presenting multiple solutions supported by sound reasoning. The findings indicate that students' average performance in writing expository texts reached a score of 78, classified as high or good. Given its advantages, authentic assessment is strongly recommended in teaching and learning. It offers several benefits, including (a) promoting students' creative and critical thinking abilities, (b) enabling them to construct meaningful learning experiences by selecting and organizing relevant responses through situational analysis, and (c) integrating instructional, learning, and assessment activities. Furthermore, authentic assessment significantly enhances students' academic

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writing proficiency and productivity, equipping them with essential skills for handling more complex tasks in real-world contexts.

Keywords: Academic writing proficiency, authentic assessment, critical thinking, expository writing, metacognitive awareness.

1. INTRODUCTION

Assessment is a vital component in the teaching and learning process, playing a key role in evaluating students' progress, measuring competencies, and guiding teachers in making informed decisions. Effective assessment ensures that learning outcomes are met while offering meaningful feedback for both educators and students (Matheis & John, 2024). Broadly, assessments can be categorized into traditional and authentic assessments. Each type serves different purposes and reflects different educational philosophies. Traditional assessments, such as standardized tests and quizzes, are typically designed to test factual recall, procedural knowledge, and rote learning (Vallis, 2025). These assessments often focus on measuring students' ability to remember and regurgitate information. In contrast, authentic assessments aim to connect learning with real-world tasks and are designed to evaluate students' ability to apply knowledge in meaningful contexts. Authentic assessments often involve complex, open-ended tasks that reflect the kinds of challenges students will encounter outside of the classroom (Gravett, 2024), fostering deeper understanding and application of knowledge. While traditional assessments measure factual recall, they often fail to promote critical thinking. Authentic assessments, on the other hand, bridge classroom learning with real-world application. However, both assessment methods have their place in education, and their impact on students' cognitive development varies significantly. These methods are widely used because they are easy to administer and offer quick results. However, research has shown that traditional assessments often encourage surface learning rather than critical engagement with the material (Ajjawi et al., 2024). They tend to test students' memory rather than their understanding, providing limited opportunities for them to analyze, synthesize, and apply what they have learned in practical situations.

In contrast, authentic assessment emphasizes real-world relevance and challenges students to apply their knowledge in meaningful ways. Tasks such as project-based learning, presentations, and problem-solution essays require students to think critically, solve problems, and present well-reasoned arguments. Authentic assessment is believed to be more effective in developing higher-order thinking skills because it engages students in deeper cognitive processes such as evaluation, synthesis, and creativity (Vallis, 2025). Gravett (2024) asserts that authentic assessments allow students to think critically and reason thoroughly. Despite the advantages of authentic assessment, its application in higher education remains limited.

In the English Education Department at Universitas Negeri Manado, many prospective teachers and educators still rely on traditional assessments. This tendency is driven by the simplicity and perceived reliability of traditional assessment tools in evaluating knowledge-based outcomes. However, this reliance may hinder students' ability to develop critical and creative thinking skills, which are essential for academic and professional success. Therefore, this study aims to evaluate how authentic assessments in expository writing enhance students' critical thinking and metacognitive awareness, particularly through problem-solution essays in the English Education Department at Manado State University. The research question guiding this study is:

1. How does using authentic assessment through problem-solution essays improve higher-order thinking skills in English Education students at Universitas Negeri Manado?

Problem-solution essays are an effective form of authentic assessment that encourages students to identify problems, analyze their causes and effects, and propose well-reasoned solutions. These tasks require students to present well-developed ideas, organize them logically, and support their arguments with evidence, all of which are key components of critical thinking. Through the integration of problem-solution essays into the curriculum, educators can create

opportunities for students to think deeply, solve problems creatively, and develop the skills needed to navigate complex issues in both academic and real-world contexts.

2. LITERATURE REVIEW

2.1 The Nature of Authentic Assessment

Unlike traditional assessments that often rely on rote memorization, authentic assessment focuses on students' ability to think critically, solve complex problems, and demonstrate deep understanding. According to [Lode \(2024\)](#), authentic assessment requires students to perform tasks that mirror real-life situations. Similarly, [Salinas-Navarro et al. \(2024\)](#) explain that authentic assessment provides multiple opportunities for students to demonstrate their learning progress through various task formats, both written and spoken. Teachers can also integrate assessments into the teaching-learning process, saving time and ensuring that the assessments align directly with learning objectives. Tasks in authentic assessments must be relevant, contextually appropriate, and reflect students' real-life experiences, allowing them to demonstrate knowledge and performance in meaningful ways ([Vallis, 2025](#)).

Authentic assessments can take many forms, such as performance assessments, portfolios, self-assessments, journals, interviews, and teacher observations ([Brown, 2004](#)). [Gravett \(2024\)](#) pointed out the key components of authentic assessments, including authentic tasks, physical and social contexts, assessment results, and criteria. Tasks must reflect real-life professional activities and align with students' needs. Assessment criteria, typically presented in scoring rubrics, help teachers evaluate students' performance fairly and transparently. [Ajjawi et al. \(2024\)](#) outlined several steps in designing authentic assessments: identifying learning standards, selecting authentic tasks, defining criteria, and developing scoring rubrics. By focusing on students' ability to apply knowledge in real-world contexts, teachers can create more meaningful learning experiences that extend beyond the classroom.

Performance and portfolio assessments are widely used to evaluate writing skills. Performance assessment requires students to demonstrate their language abilities through tasks such as essay writing, which promotes multi-skill integration and problem-solving ([Muhammad et al., 2024](#)). [Brown \(2004\)](#) classifies performance assessment into four types: imitative, intensive, responsive, and extensive writing. Extensive writing, for example, involves composing essays and research papers that require mastery of all writing processes. Portfolios offer another alternative, allowing students to showcase their progress and achievements through a collection of work. According to [Abduljawad \(2024\)](#), portfolios can take the form of working portfolios, best works portfolios, or assessment portfolios. Each type serves a different purpose, from diagnosing student needs to documenting mastery of curriculum outcomes. To ensure reliable and valid assessments, teachers use analytic rubrics to provide constructive feedback and guide students in improving their writing. Portfolio assessment also promotes self-reflection and peer evaluation, giving students opportunities to take ownership of their learning.

2.2 The Nature of Critical Thinking

Critical thinking is the process of conceptualizing, applying, analyzing, synthesizing, and evaluating information gathered through observation, experience, or reasoning to guide beliefs and actions. [Marin and Copeland \(2024\)](#) claimed that critical thinking is the ability to provide logical reasons and evaluate arguments for or against a condition, indicating that a person must assess and critique arguments related to their views. Critical thinking involves understanding information, recognizing relationships between elements, assessing credibility, and identifying key components to draw logical conclusions, either deductively or inductively ([Pelenkahu et al., 2024](#)). Often associated with higher-order thinking skills (HOTS), critical thinking follows systematic stages marked by fluency, flexibility, originality, and elaboration ([Septiany et al., 2024](#)). Fluency is the ability to generate multiple ideas to solve a problem, while flexibility

involves transforming and redefining information. Originality emphasizes generating unique ideas, and elaboration focuses on developing and expanding ideas to improve their quality (Aeyun et al., 2020). Marin and Copeland (2024) support the twelve components of critical thinking: formulating problems, analyzing arguments, asking and answering questions, assessing information credibility, observing and reporting, making deductions and inductions, evaluating, defining and assessing definitions, identifying assumptions, deciding and implementing, and interacting with others.

2.3 The Role of Authentic Assessment in Developing Thinking Skills

Assessing students' thinking skills plays a crucial role in education, particularly in writing. As educators aim to foster critical thinking, problem-solving, and creativity, it becomes essential to design assessments that effectively measure these skills. Proper assessment enhances students' thinking skills, which, in turn, improves their overall academic achievement. Authentic assessment offers opportunities for students to think and act creatively and critically. It encourages them to engage in exploration, analyze problems using logical reasoning and credible evidence, and respond critically to realistic situations.

Authentic assessment, as mentioned by Vallis (2025), requires students to apply knowledge, skills, and behaviors in real-life or professional situations. However, many educators still face challenges in implementing authentic assessments, as traditional assessments remain dominant in evaluating students' knowledge. Conventional assessments often fail to develop the higher-order thinking skills essential for 21st-century demands. Villarroel et al. (2024) highlight that authentic assessment occurs when students are asked to perform tasks that demonstrate the meaningful application of their knowledge and skills. Salinas-Navarro et al. (2024) emphasize that authentic assessment promotes critical thinking and knowledge application in real-life contexts. It allows students to justify their answers or products, thereby strengthening their reasoning and problem-solving skills. Authentic assessment emphasizes applying skills and engaging deeper thinking beyond mere knowledge acquisition.

2.4 The Role of Authentic Assessment in Developing Metacognitive Awareness

Metacognitive awareness refers to the ability to reflect on one's own thought processes and learning experiences (Pelenkahu et al., 2024). This awareness is essential for understanding, communication, memory, attention, and problem-solving. In cognitive psychology, metacognition is described as awareness of one's cognitive processes, how these processes work, and how they can be regulated. According to Schraw and Moshman (1995, as cited in Muhammad et al., 2024), metacognitive awareness consists of two key aspects: knowledge about cognition and regulation of cognition. The former includes declarative, procedural, and conditional knowledge. Declarative knowledge refers to understanding facts or information, procedural knowledge involves knowing how to apply information to complete tasks, and conditional knowledge is the understanding of when and why to use specific procedures or skills. The latter aspect, regulation of cognition, encompasses planning, information management strategies, comprehension monitoring, debugging strategies, and evaluation. These processes ensure efficient learning and problem-solving, particularly in areas like mathematics and language.

Authentic assessment plays a vital role in fostering metacognitive awareness by encouraging students to reflect on their learning. These assessments ask students to evaluate their progress, self-assess their work, and reflect on how their learning has evolved. One key element of authentic assessment is self-assessment, which involves students evaluating their own learning against set goals or criteria (Andrade & Du, 2007). Self-assessment encourages students to recognize their strengths and weaknesses, motivating them to improve and take responsibility for their learning. By actively monitoring their progress, students are more likely to set higher goals and invest more effort into their learning. This process aligns with the regulatory aspect of metacognition, helping students reflect on their thinking, identify areas for improvement, and apply strategies to enhance their understanding and skills.

2.5 The Nature of Expository Writing: Problem-Solution Essay

Critical thinking is an essential skill for students as they face academic challenges, filter information, and solve problems. Teachers can support the development of these skills by engaging students in problem-solving activities, such as writing essays that address real-world issues. Writing, in this context, becomes a valuable tool for exercising cognitive abilities, enabling students to analyze, synthesize, and evaluate information critically. These processes help them explore problems from multiple perspectives, sharpening their critical thinking and higher-order thinking skills, which are closely interconnected (Ward et al., 2024). Expository writing presents factual information clearly and concisely to inform or educate readers.

Problem-solving, as part of this essay-writing activity, requires students to formulate new answers based on prior knowledge to achieve a goal. Butvilas et al. (2023) highlight that solving problems involves various thinking skills, such as analysis, reasoning, prediction, and evaluation. Memory alone is insufficient for problem-solving; one must be able to apply the right course of action based on the specific situation. This activity typically follows a series of steps, including defining the problem, analyzing it, and implementing a solution. Irawan et al. (2024) support the seven steps for planning a problem-solution essay: identifying the problem, analyzing it, determining the criteria for an optimal solution, proposing solutions, evaluating those solutions, selecting the best one, and suggesting strategies for implementing the solution. These steps help guide students through the problem-solving process and enhance their ability to think critically while engaging with real-world challenges.

3. METHODS

3.1 Design and Participants

This research used a descriptive qualitative analysis method. Gay et al. (2006) said that qualitative research is the collection, analysis, and interpretation of comprehensive narrative and visual data to gain insights into a particular phenomenon studied. In education, descriptive qualitative research can be used to explore teaching and learning processes, student experiences, and educational practices (Kozleski, 2017). In this study, qualitative research is used to explore and analyze the effectiveness of authentic assessment in increasing students' critical thinking in writing expository text, problem-solving essays, and the level of students' metacognitive awareness. The sample consisted of 40 fifth-semester prospective English Education Department students at Universitas Negeri Manado, Indonesia, who were taking the Advanced Writing course.

3.2 Data Collection

Data were collected through tests, checklists, and document analysis. Tests are a procedure intended to establish the quality, performance, or reliability of something, especially before it is taken into practice. Table 1 presents the data collection.

Table 1. Types of assessment, assessment tools, instrument forms (source: Alam & Aktar, 2019).

Types of assessment	Assessment tools	Instruments forms
Performance Assessment Portfolio Assessment	• Draft • Expository Writing: Problem-Solution Essays	• Tests • Documents • Scoring rubrics (analytic type)
Metacognitive Awareness	• Metacognitive inventory	• Metacognitive inventory scoring guide

3.3 Data Analysis

To determine whether authentic assessment can enhance critical thinking and metacognitive awareness, the data were analyzed using descriptive qualitative methods. In the portfolio assessment, students' test results in Draft and Expository Writing, as well as Problem-Solution Essays, were examined using a draft writing rubric and a problem-solution essay scoring rubric to evaluate their performance. To assess metacognitive awareness, the Metacognitive Awareness Inventory scoring guide was used, applying a 1-4 scale that was later converted into letter grades (A, B, C, D) (see Table 2). The scale was aligned with specific assessment criteria from the rubric, focusing on both content and process. For example, a score of 4 was given for the most complete answers. After scoring, the average value across all assessed aspects was calculated.

Table 2. The Assessment category (source: Universitas Negeri Manado, 2021, p. 38).

Score	Assessment category		Letter conversion
	Interval	Category	
4	80-90	Very good	A
3	70-79	Good	B
2	60-69	Fair	C
1	50-59	Poor	D
0	<50	Very poor	E

4. FINDINGS

In the portfolio assessment, the students' draft scores for the problem-solution essay showed significant results in structuring the outline, introduction, body paragraphs (main points), and conclusion. Before writing the drafts, the students were informed of the assessment criteria to be considered. The scores of all students who completed their drafts are presented in Table 3.

Table 3. The percentage scores of students' writing drafts.

No.	Interval	Category	Letter	Student frequency (%)	Frequency of scores (obtained by students)	Average value (%)
4	80-90	Very Good	A	24%	90 (8 students), 80 (16 students)	85
3	70-79	Good	B	16%	75 (13 students), 70 (3 students)	72.5
2	60-69	Fair	C	0%	None	N/A
1	50-59	Poor	D	0%	None	N/A

Figure 1 shows the frequency of students' draft writing abilities by category.

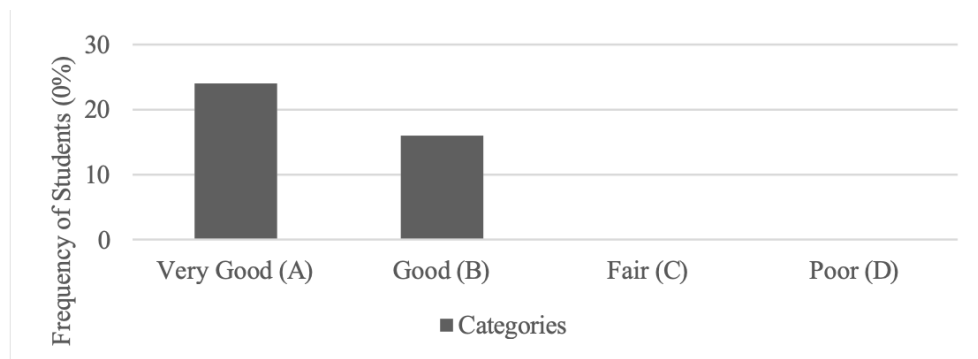


Figure 1. Students' ability in writing drafts.

Table 3 shows that 24 students (60%) demonstrated very high or very good ability, with 8 students scoring 90 and 16 scoring 80. Meanwhile, 16 students (40%) met the high or good

criteria. It can be concluded that most students wrote drafts with well-developed introductions, body paragraphs, and conclusions. Figure 1 indicates that the average score was 80, corresponding to very high or very good criteria.

After completing the draft, the students were asked to write an essay. The results of their problem-solving essay writing abilities are presented in Table 4.

Table 4. Percentage of students' ability in writing expository texts: Problem-Solution Essays.

No.	Interval	Category	Letter	Students	Frequency of students (%)	Average value	Category
4	80-90	Very Good	A	The score of 90 was obtained by 6 students.	42.5%	85%	Very Good
				The score of 80 was obtained by 11 students.			
3	70-79	Good	B	The score of 78 was obtained by 18 students.	80%	75%	Good
				The score of 70 was obtained by 5 students.			
2	60-69	Fair	C	0	0%	65%	Fair
1	50-59	Poor	D	0	0%	55%	Poor

Figure 2 illustrates the students' ability in writing expository texts based on the data presented. It shows the percentage of students in each category, where the average student score was 78, reflecting a "high" or "good" level.

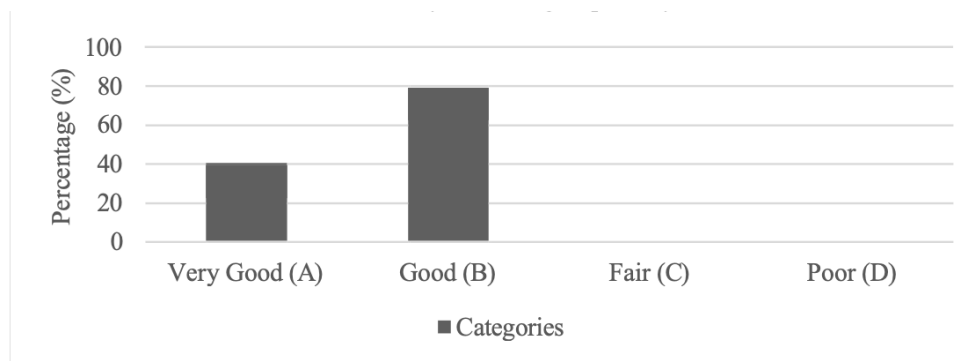


Figure 2. Students' ability in writing expository text.

Table 4 shows positive results for students' problem-solution essay writing scores. Seventeen students (42.5%) achieved very high or "very good" ability, while 23 students (57%) demonstrated high or "good" ability. Most students (57%) exhibited skills in (1) clear communication using grammar and vocabulary appropriate for academic style, (2) creating logical connections between ideas, (3) understanding problems, (4) analyzing causes and effects with facts and evidence, and (5) developing strong, well-supported, relevant, and critical solutions and arguments.

To assess students' metacognitive awareness regarding knowledge and regulation of cognition, a survey was conducted with 105 English Education Department students at Universitas Negeri Manado, including the 40 students mentioned earlier. The results are presented in the following figures. Figure 3 shows Regulation of Cognition consistently outperformed Knowledge about Cognition, with mean scores of 88% (92 out of 105 students) and 84% (88 out of 105 students), respectively. This indicates participants have a stronger grasp and application of cognitive regulation. The results emphasize the importance of managing cognitive processes by emphasizing strategies that enhance thinking skills beyond simple knowledge acquisition or memorization.

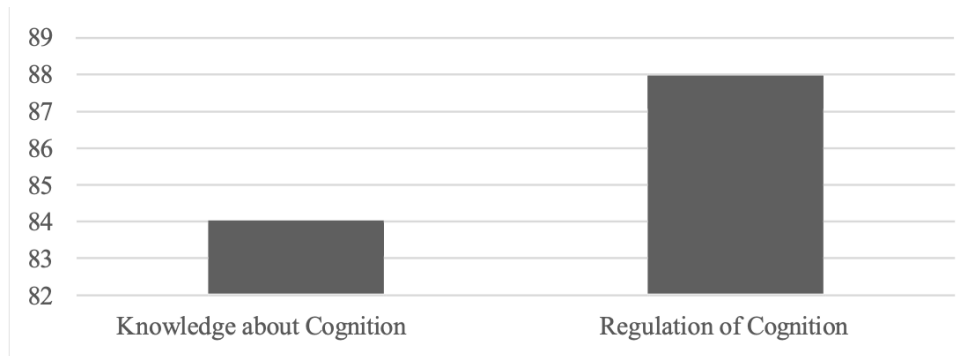


Figure 3. Average score of the Metacognitive Awareness Inventory (Knowledge about Cognition and Regulation of Cognition).

Figure 4 shows Procedural Knowledge scored highest at 88% (92 out of 105 students), followed by Conditional Knowledge at 84.5% (89 students), and Declarative Knowledge lowest at 80% (83 students).

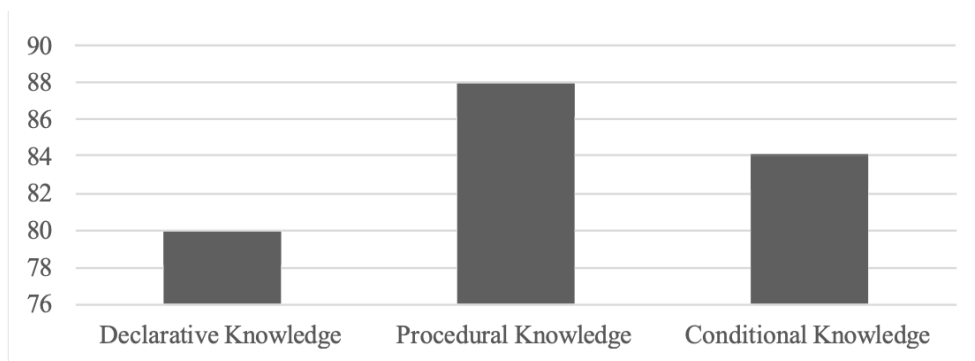


Figure 4. Average score of the knowledge about the cognition aspect.

In Figure 5, Regulation of Cognition, Comprehension Monitoring scored highest at 91.2% (96 out of 105), and Information Management Strategies lowest at 81.3% (85 out of 105). Rankings from highest to lowest are: (1) Comprehension Monitoring, (2) Debugging Strategies, (3) Planning, (4) Evaluation, and (5) Information Management Strategies.

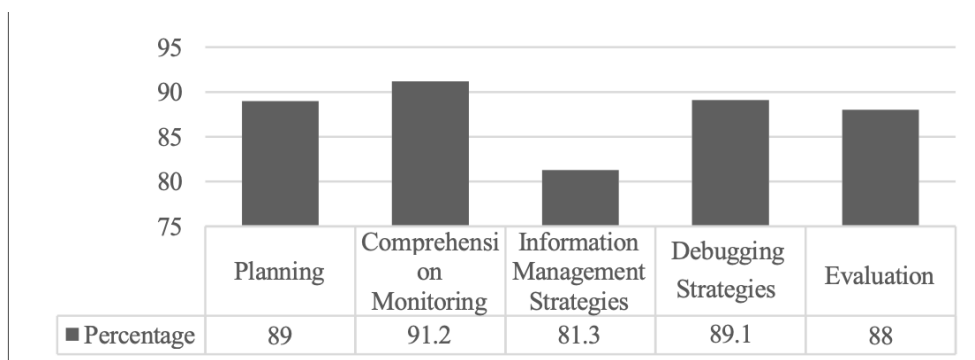


Figure 5. The average of the regulation of cognition aspects.

4.1 Metacognitive Awareness Inventory on Knowledge about Cognition

Knowledge about Cognition consists of three parts: Declarative Knowledge, Procedural Knowledge, and Conditional Knowledge. Table 5 provides a detailed explanation of each.

Table 5. Answers to Declarative Knowledge.

Item	Statement	Total respondents (out of 105)	Percentage (%)
5	I understand my intellectual strengths and weaknesses.	85	81
10	I rarely make mistakes in writing texts, both in the structure of the text and in linguistic rules.	86	82
12	Before developing ideas, I always write an outline.	82	78
16	I find writing more difficult than reading (considering vocabulary, grammar, and sentence structure).	84	80
17	I am good at remembering information.	83	79
20	I have control over how well I learn.	81	77
32	I am a good judge of how well I understand something.	79	75
46	I learn more when I am interested in the topic.	88	84
Average		83	80

Table 5 shows that most students learned more when interested in the topic (Statement 46: 84%; 88 out of 105 students). Meanwhile, only 79% (83 out of 105) reported being good at remembering information (Statement 17), meaning 21% (22 out of 105) were not. Few students consistently write an outline before developing ideas (Statement 12: 78%; 82 out of 105) or are confident judges of their understanding (Statement 32: 75%; 79 out of 105). The average score for Declarative Knowledge is 80% (83 out of 105 students).

Table 6. Answers to Procedural Knowledge.

Item	Statement	Total respondents (out of 105)	Percentage (%)
3	I try to use strategies that have worked in the past.	93	88
14	I have a specific purpose for each strategy I use.	91	87
27	I am aware of the strategies I use when I study.	94	89.5
33	I find myself using helpful learning strategies automatically.	90	86
Average		92	88

From Table 6 on Procedural Knowledge, the highest response was to Statement 27, where 89.5% (94 out of 105 students) reported being aware of the strategies they use while studying. Conversely, 10.5% (11 out of 105 students) were unaware of their strategies. The lowest response was for Statement 33, with 86% (90 out of 105 students) indicating they automatically use helpful learning strategies. The average Procedural Knowledge score was 88% (92 of 105 students), showing students knew Procedural knowledge better than Declarative.

Table 7. Answers to Conditional Knowledge.

Item	Statement	Total respondents (out of 105)	Percentage (%)
15	I learn best when I know something about the topic.	90	86
18	I know when to use the right strategies in writing, starting from planning, developing ideas, and evaluating.	88	84
26	I can motivate myself to learn when I work in a group.	90	86
29	I use my intellectual strengths to compensate for my weaknesses.	89	85
35	I know when each strategy I use will be most effective.	89	85
Average		89	84.5

Table 7 on Conditional Knowledge shows that 86% of students (90 out of 105) learn best when they know something about the topic (Statement 15). This suggests that students are motivated to learn when familiar with the subject matter. However, only 84% (88 out of 105 students) know when to use the appropriate strategies in writing, including planning, developing ideas, and evaluating (Statement 18). This means 16% (17 out of 105 students) are unsure about when to apply these writing strategies, indicating a need for continued practice in these areas. Overall, Conditional Knowledge averaged 84.5% (89 out of 105 students), making it the second highest score within Knowledge about Cognition.

4.2 Metacognitive Awareness Inventory on Regulation of Cognition

In Regulation of Cognition, there are five aspects of metacognitive awareness, namely: Planning, Comprehension Monitoring, Information Management Strategies, Debugging Strategies, and Evaluation. Table 8 describes Regulation of Cognition in Planning. Most students read instructions carefully before beginning a task (Statement 42: 90%, 95 out of 105 students). However, only 88% (92 out of 105) effectively organize their time to accomplish goals, and 88.5% (93 out of 105) set specific goals before starting tasks, as well as ask themselves questions about the material beforehand (Statement 22). Overall, the average score for Planning was 89% (92 out of 105 students).

Table 8. Answers to Planning.

Item	Statement	Total respondents (out of 105)	Percentage (%)
4	I pace myself while learning to have enough time.	94	89.5
6	I think about what I really need to learn before I begin a task.	93	88.5
8	I set specific goals before I begin a task.	92	88
22	I ask myself questions about the material before I begin.	93	88.5
23	I think of several ways and ask friends to solve a problem, and choose the best one.	94	89.5
42	I read instructions carefully before I begin a task.	95	90
45	I organize my time to best accomplish my goals.	92	88
Average		92	89

Table 9 shows that Comprehension Monitoring had the highest percentage among all aspects of Regulation of Cognition. The most favorable item was Statement 1, where 93% of students (98 out of 105) reported periodically asking themselves if they were meeting their goals. The lowest score was for Statement 28, with 92% of students (97 out of 105) indicating they analyzed the usefulness of strategies while studying. The average score for Comprehension Monitoring was 91.2% (96 out of 105 students), indicating that nearly all students demonstrated competence in this area.

Table 9. Answers to Comprehension Monitoring.

Item	Statement	Total respondents (out of 105)	Percentage (%)
1	I ask myself periodically if I am meeting my goals.	98	93
2	I consider several alternatives to a problem before I answer.	97	92
11	I ask myself if I have considered all options when solving a problem.	96	91
21	I periodically review to help me understand important relationships.	95	90
28	I find myself analyzing the usefulness of strategies while I study.	97	92
34	I find myself pausing regularly to check my comprehension.	94	89.5
49	I ask myself questions about how well I am doing while learning something new.	96	91
Average		96	91.2

In Table 10, Information on Management Strategies had the lowest percentage among all aspects of Regulation of Cognition, with an average of 81.3%. This suggests that students still face difficulties managing strategies effectively. The highest agreement was on Statement 30, where 86% of students (90 out of 105) focused on the meaning and significance of new information, followed by Statement 43, with 85% (89 out of 105) reporting that they usually discuss tasks with classmates. The least frequent response was for Statement 37, where only 82% (78 out of 95 students) said they drew pictures or diagrams to aid understanding while learning. The overall average for this aspect was 81.3% (85 out of 105 students).

Table 10. Answers to Information on Management Strategies.

Item	Statement	Total respondents (out of 105)	Percentage (%)
9	I slow down when I encounter difficult words and other language structures.	86	82
13	I consciously focus my attention on important information/problems.	84	80
30	I focus on the meaning and significance of new information.	90	86
31	I create my own examples to make information more meaningful.	83	79
37	I draw pictures or diagrams to help me understand while learning.	84	80
39	I try to translate new information into my own words.	82	78
41	I use the organizational structure of the text to help me learn.	86	82
43	I usually discuss with my classmates about the tasks given to us.	85	81
47	I ask the teacher about the materials I don't understand.	89	85
48	I focus on the overall meaning rather than specifics.	84	80
Average		85	81.3

Table 11 presents data on the Regulation of Cognition for Debugging Strategies. In this area, students are expected to use strategies to correct comprehension and performance errors. The average score was 89.1% (94 out of 105 students). The highest response was for Statement 25, where 90% of students (95 out of 105) reported asking others for help when they did not understand something. Additionally, 91% of students (96 out of 105) indicated that they stopped and reviewed unclear information (Statement 51), and similarly, 91% (96 out of 105) reported stopping and rereading when confused (Statement 52).

Table 11. Answers to Debugging Strategies.

Item	Statement	Total respondents (out of 105)	Percentage (%)
25	I ask others for help when I don't understand something.	95	90
40	I change strategies when I fail to understand.	93	88.5
44	I re-evaluate my assumptions when I get confused.	91	87
51	I stop and go back over the new information that is not clear.	94	89
52	I stop and reread when I get confused.	96	91
Average		94	89.1

Table 12 shows that the average percentage for the evaluation aspect is 88%. In this aspect, students are expected to analyze the effectiveness of their performance and strategies after a learning episode. Most students selected Statement 36, indicating they asked themselves how well they accomplished their goals upon completion. Additionally, 86% (90 out of 105 students) reported summarizing what they had learned after finishing (Statement 24).

Table 12. Answers to evaluation.

Item	Statement	Total respondents (out of 105)	Percentage (%)
7	I know how well I did once I finish a test.	94	89.5
19	I ask myself if there was an easier way to do things after I finish a task.	92	88
24	I summarize what I've learned after I finish.	90	86
36	I ask myself how well I accomplish my goals once I'm finished.	94	89.5
38	I ask myself if I have considered all options after I solve a problem.	93	88.5
50	I ask myself if I learned as much as I could have once I finish a task.	91	87
Average		92	88

5. DISCUSSION

Based on the findings of this research, it indicates that authentic assessments, such as performance and portfolio evaluations, significantly enhance students' critical thinking abilities.

These assessments require learners to engage in real-world tasks that demand analysis, synthesis, and evaluation, thereby fostering higher-order cognitive skills. For instance, students tasked with writing problem-solution essays demonstrate the capacity to critically assess issues, analyze causes and effects, and propose well-supported solutions. This process aligns with the theoretical framework that critical thinking encompasses the ability to analyze problems, elaborate on conditions, propose several solutions, and provide logical arguments and credible evidence (Soe, 2024).

Moreover, authentic assessments promote reflective practices, allowing students to connect prior knowledge with new insights, thereby deepening their understanding. Engaging in such assessments also encourages students to explore multiple perspectives and employ various strategies, leading to the development of their own viewpoints. This approach not only improves critical thinking but also enhances the overall learning experience by making tasks more meaningful and relevant to students' lives (Septiany et al., 2024). Additionally, the use of rubrics and assessment criteria in authentic assessments provides transparency, helping students understand expectations and guiding them toward achieving desired learning outcomes (Baines et al., 2024; Lode, 2024). Despite these opportunities, authentic assessment in higher education presents significant challenges. Authentic assessments can take more time to develop. In writing a problem solution essay, students need much time to arrange the outline, body of the paragraph, and the conclusion. They have to identify and comprehend the realistic problems in a real-world context, which retains the complexity of the real world, which is one of the components of authentic assessment. Students said that it was difficult for them to comprehend the problems, examine problems from a variety of points of view, and explain their inferences. In evaluating the causes and effects of problems, students must present logical facts and evidence and propose appropriate solutions through reasoning that reflects key components of critical thinking. De Witt et al. (2024) and Irawan et al. (2024) outlined these components as including formulating problems, analyzing arguments, asking and answering relevant questions, assessing the credibility of information sources, and making and evaluating both deductive and inductive reasoning.

In addition to the components mentioned above, recent studies have emphasized critical thinking skills as essential competencies in academic contexts. Moreover, Pelenkahu et al. (2024) noted that critical thinking encompasses: (1) the ability to identify problems, (2) the ability to select relevant information for problem-solving, (3) the ability to identify underlying assumptions, (4) the ability to formulate hypotheses, and (5) the ability to draw logical conclusions. These align with the principles of critical thinking outlined by Darwin et al. (2024), which emphasize a deep understanding of problems, logical analysis for practical solutions, and selecting relevant problems based on real-world contexts. Similarly, Nurhidayat et al. (2024) reinforce these components as foundational in fostering higher-order thinking. Beyond these cognitive skills, learners must also communicate clearly using language that demonstrates accurate grammar and vocabulary appropriate to an academic style (Bui & Nguyen, 2024). In this case, the students not only need much time to continue practicing writing, but also intensive guidance from the teachers. Indeed, the time that is consumed for the effective implementation of authentic assessments might result in slowing down the pace of syllabus coverage. Moreover, the teachers cannot completely rely on the authentic assessments for providing feedback and evaluating the students' gains in learning experiences. This can be seen as an extra burden for the teachers. Furthermore, some of the teachers have no experience in designing authentic assessments. Hadibarata et al. (2024) stated that teaching staff often lack the necessary experience to design effective, authentic assessments and face constraints such as limited standardized measures and time. In addition, authentic assessments may require more time and effort on an instructor's part to develop, and may be more difficult to grade. Further research is expected to explore the challenges and solutions of the implementation of authentic assessment.

A study by Hadibarata et al. (2024) revealed that university students demonstrate greater proficiency in the Regulation of Cognition than in their Knowledge of Cognition. This indicates that students are more capable of managing their cognitive processes, such as planning, monitoring, and evaluating learning, than understanding the underlying mechanisms. Comprehensive monitoring emerged as the strongest aspect, suggesting that students are aware

of their learning activities. Authentic assessment supports the development of this metacognitive awareness by encouraging students to reflect, self-assess, and evaluate their learning progress. It strengthens skills that help students “learn how to study” more effectively. Metacognitive awareness enhances individuals’ ability to manage and control their cognitive functions, leading to more efficient learning outcomes. Supporting this, [Avdiu et al. \(2025\)](#) found a significant correlation between students’ metacognitive awareness and writing ability, where those with stronger metacognitive skills exhibited better writing performance, underlining the educational value of nurturing such awareness in academic settings.

With meta-cognitive skill, an individual is aware of his/her knowledge and reflects on the knowledge effectively ([Teng & Ma, 2024](#)). Moreover, this study found that in Knowledge about Cognition, students excelled in Procedural Knowledge, knowing how to perform tasks and use strategies than declarative knowledge (knowledge of facts) and conditional knowledge (knowing when and why to use certain strategies). It indicates that students are still not aware of the factual knowledge they need before being able to use critical thinking related to the topic, and when and why to use the learning procedure, which affects the quality of expository text writing. The teacher must also always encourage students to reflect on their learning. As students reflect on their learning strategies, they become better equipped to make conscious decisions about what they can do to improve their learning ([Wuntu et al., 2024](#)). The findings showed that the students were aware of their writing mistakes, strengths, and weaknesses, and they tried to revise their work to be better than before. Metacognitive strategies influence and improve the quality of the contents of writing because this strategy requires high-level thinking skills. Students need to be trained to use metacognitive strategies in writing, ranging from planning writing, developing ideas, and evaluating writing ([Kim et al., 2025](#)). Further research can be conducted on exploring metacognitive awareness in writing.

6. CONCLUSION

The researchers concluded that authentic assessments can encourage students’ ability to think and act creatively as well as critically through direct involvement in real-world problem-solving processes. Through continuous assessments, students not only develop essential cognitive skills but also improve their metacognitive awareness, so that they can monitor and manage their learning process more effectively. Along with the increase in metacognitive skills, there is also a significant increase in students’ academic and cognitive competence. In addition, authentic assessments facilitate the integration of knowledge, skills, and behaviors, ultimately equipping students with the competencies necessary to face challenges in the professional world.

For further research, it is suggested that the long-term impact of authentic assessments on the development of students’ cognitive and metacognitive abilities can be further researched. The study of its influence in various learning environments is also expected to provide deeper insights into the role of authentic assessments in shaping aspects of academic growth. In addition, an understanding of how continuous assessment can promote learning behaviors and critical thinking skills will be very useful in refining more effective pedagogical practices. This kind of research will contribute to improving the implementation of authentic assessments to better support students in becoming independent and reflective learners.

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APPENDIX

Table A1. Draft writing rubric by [Culham \(2003\)](#).

	4 Very good	3 Good	2 Fair	1 Poor/Needs improvement	Score
Outline	The content of the outline was detailed and aligned with the submitted rough draft.	The outline was partially aligned with the content of the rough draft.	An outline was submitted, but it was vague or semi-completed	An outline was not submitted	
Introduction	- Well-developed introduction engages the reader and creates interest. - Contains detailed background information. - Thesis clearly states a significant and compelling position.	- The introduction creates interest. - Thesis clearly states the position.	- The introduction adequately explains the background, but may lack detail. - Thesis states the position.	- Background details are a random collection of information, unclear, or not related to the topic. - Thesis is vague or unclear.	
Main points (Body paragraph)	- Well-developed main points directly related to the thesis. Supporting examples are concrete and detailed. - The narrative is developed with a consistent and effective point of view, showing the problems in detail - The Conclusion effectively wraps up and goes beyond restating the thesis.	- Three or more main points are related to the thesis, but one may lack details. - The narrative shows events from the author's point of view using some details. - The Conclusion effectively summarizes topics.	- Three or more main points are present. - The narrative shows the events, but may lack details. - The Conclusion is recognizable and ties up almost all loose ends.	- Less than three main points, and/or poor development of ideas. - The narrative is undeveloped, and tells rather than shows the story. - The Conclusion does not summarize the main points.	
Organization (Structure/ Transitions)	- Follows a coherent pattern of organization (beginning, middle, end). - Uses transitional words and phrases to maintain coherence and establish sequence within	Follows a coherent pattern of organization (beginning, middle, end). Uses some transitional words and phrases to maintain coherence and establish sequence within	- The pattern of organization (beginning, middle, end) is partially evident. - Fewer than two transitional words and phrases were used within and between paragraphs.	- No discernible organization. - Transitions are not present.	
	and between paragraphs.	and between paragraphs.			
TOTAL SCORE:					

Table A2. Scoring rubric of expository writing: Problems-solution essay by Jumariati, et al. (2022, p. 30).

	Very good /Outstanding (4)	Good (3)	Fair/Satisfactory (2)	Poor/Barely adequate (1)
Content • Meets expectations regarding the requirements of the task. • presents arguments with relevant, detailed support from given sources, with own interpretation of the topic	• Fulfils all the task requirements convincingly. • Develops strong solutions and arguments that are very well supported and highly relevant, and critical. • Arguments are drawn from the given sources and own interpretation of the topic. • Shows originality.	• Fulfils task requirements. • Develops problems and solution arguments that are relevant and well supported. • Arguments are drawn mainly from the given sources, but with their interpretation of the topic.	• Fulfils task requirements, though some only partly. • Develops problem and solution arguments, but support may be weak and/or illogical in some places. • Arguments are drawn only from the given sources	• Fulfils some but not all task requirements. • Presents some arguments, but they are not always relevant or supported. • Mostly summarizes the arguments from the given sources.
Organization • Make clear and logical connections between ideas throughout the writing. • Use different methods to connect ideas, such as transition words or phrases.	• Presents ideas logically about one another, within and between paragraphs, making it very easy for the reader to follow. • Uses a wide range of methods to connect ideas successfully.	• Presents ideas mostly logically about one another within and between paragraphs, making it easy for the reader to follow. • Uses a range of methods to connect ideas mostly successfully	• Presents ideas generally logically about one another within and between paragraphs, but some errors in this make it a little difficult for the reader to follow. • Uses a narrow range of methods to connect ideas mostly successfully	• Presents ideas about one another illogically at times, making it difficult for the reader to follow. • Uses basic linking words to connect ideas, sometimes unsuccessfully.
Language • Communicates language clearly with accurate grammar and vocabulary appropriate to academic style.	• Uses a wide range of language structures accurately to communicate meaning clearly. • Write in academic style throughout with appropriate use of vocabulary to convey precise meaning.	• Uses a range of language structures to communicate meaning clearly, with occasional mistakes. • Write mostly in academic style with mostly appropriate use of vocabulary.	• Uses a limited range of language structure to communicate meaning, with several mistakes that occasionally cause readers difficulties. • Write generally in academic style, but with some inappropriate use of vocabulary	• Uses a very limited range of language structure accurately to communicate meaning, with many mistakes that frequently cause readers difficulties. • Attends to write in academic style, but with frequent inappropriate use of vocabulary.
Referencing				

• Write in-text citations correctly according to the chosen referencing convention	• Write in-text citations correctly throughout.	• Write in-text citations mostly correctly with the occasional minor error.	• Write in-text citations generally correctly, but with some basic errors.	• Attempt to write in-text citations, but make frequent errors.
TOTAL SCORE:				

Table A3. Scoring rubric in assessing students' draft and expository writing: Problem-solution essay type (Widiastuti & Indriani, 2023, p. 7).

Score	Assessment criteria
4 (Very good)	Identifying problems. Viewing problems from different perspectives. Analyzing cause and effect by giving facts and evidence Giving clear and various solutions to the problems through logical reasoning. Drawing conclusion.
3 (Good)	Identifying problems. Viewing problems from different perspectives Analyzing cause and effect by giving facts and evidence Giving clear solution to the problems.
2 (Fair)	Identifying problems. Giving clear and varied solutions to the problems. Drawing Conclusion
1 (Poor)	Identifying problems. Giving clear and varied solutions to the problems.