

Analysis of Student's Critical Thinking Ability in Accounting

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Critical thinking skills must be mastered by students in the 21st century. The purpose of this study is to analyze the extent to which critical thinking skills are possessed by students in vocational schools in accounting learning. This research is included in the type of qualitative descriptive research. Data collection techniques consisted of observation, tests, and unstructured interviews (open interviews). This research was conducted at VHS 1 Ngawi with the research subjects of class XI students majoring in Financial and Institutional Accounting. The results showed that student's critical thinking skills in accounting learning are still low. The implications of the findings indicate the need for improvements to the current learning system.

Keywords: *Critical Thinking, Accounting, Vocational High School*

Introduction

The 21st century is marked by intense market competition, constant renewal, an economy driven by innovation and knowledge, and complex challenges in various fields (Wan & Gut, 2011:41). This condition causes a shift in the needs of the labor market. Prospective workers today must-have 21st century skills to face increasingly complex job demands (World Economic Forum, 2015:2). One of the 4C skills that must be possessed by prospective workers today is the ability to think critically (critical thinking).

Critical thinking ability is a metacognitive process that includes several sub-skills such as analysis, evaluation, and inference (Dwyer et al., 2014). Research by Gruzdev et al., (2018) results that critical thinking skills rank first in the list of soft skills most sought after by employers. Critical thinking skills are needed in the world of work because they help someone to make the right decisions, find solutions to complex problems through persuasive reasoning and systematic thinking, and increase competence in doing professional work (Cruz et al., 2020).

Vocational High School (VHS) is a level of education that prepares students to master one group or one field of work. Vocational Schools combine learning experiences at school with work experience in the business world (Direktorat Sekolah Menengah Kejuruan, 2013). The hope is that students have mature abilities and are ready to work after graduation. In connection with this goal, students need to master critical thinking skills which are one of the most important soft skills in the 21st century. In addition, good critical thinking skills will help them get decent jobs when they graduate.

This study aims to analyze the critical thinking skills of students in VHS majoring in Financial Accounting and Institutions and their implications for the learning system. The previous studies that are in line with this research include research belonging to Nuryanti et al., (2018) which analyzes the critical thinking skills of students at the junior high school level and Agnafia (2019) which explores the critical thinking skills of VHS students in Biology subject. This study is also in line with the research of Kurniawan et al., (2021) who analyzed the critical thinking skills of students in grades X, XI, and XII of VHS. In addition, this research is also in line with the research of Nuraeni and Bakri (2022) which describes student's critical thinking skills in scientific debates.

The novelty of this research is that the critical thinking test instrument used adopts Facione's critical thinking indicator which consists of six indicators, namely interpretation, analysis, evaluation, inference, explanation, and self-regulation. The six indicators are then combined with Financial Accounting material which is limited to basic competence 3.8, namely Implementing Inventory Recording. Inventory recording material was chosen because recording errors or choosing the wrong recording method will affect the profits earned by the company (Weygandt et al., 2014:292). Therefore, students must master the inventory recording material so that mistakes do not occur when they work later.

Literature Review

Critical Thinking Ability

Before being widely known as it is today, critical thinking was previously used as a learning approach by Socrates about 2000 years ago. As for the American philosopher, psychologist, and educator, John Dewey (1909) called critical thinking skills as the ability to think reflectively, namely the process of thinking actively to consider all forms of knowledge based on the arguments that support it. Facione (2015:4) defines critical thinking as thinking that has the aim of proving a point, interpreting the meaning of something, and solving problems that can be a collaborative, non-competitive effort. Facione also revealed that there are six critical thinking indicators which include interpretation, analysis, evaluation, inference, explanation, and self-regulation.

Cottrell (2017:8) explains that in the context of the world of education, students are expected to be able to develop their critical thinking skills so that they can dig deeper into the knowledge

they learn and not just on the surface. The implication is that students will better understand and master the material. When applied correctly, critical thinking skills will help a person make realistic and accurate assessments of one's abilities, interests, and thinking processes. This will be useful in helping decision-making. In line with this opinion, Dwyer et al., (2014) state that critical thinking skills when used properly will increase the ability to generate logical conclusions about an argument or find a solution to a problem.

Accounting Subjects

Accounting is the activity of identifying, recording, and communicating the company's economic activities to interested parties. Parties with an interest in accounting data are divided into two, namely internal users and external users. Internal users consist of managers, supervisors, finance directors, and company officers. The external users consist of investors and creditors (Weygandt et al., 2014:4-6). Currently, accounting is a field of science that is much needed in the world of work. Employment as accountants and auditors is projected to grow by 7% from 2020 to 2030. An average of about 135,000 job vacancies for accountants and auditors are opened in the United States each year (U.S. Department of Labor, 2021).

Seeing a large number of job opportunities in the accounting field, students majoring in Accounting at Vocational High School must master the material taught at school. Good accounting knowledge and skills will make it easier for students to get jobs. However, students must also have the ability to think critically to carry out their main tasks when working as accountants or auditors. The main tasks include collecting, analyzing, interpreting, identifying, and evaluating complex business information and company financial reports (Latif et al., 2019). Critical thinking skills are needed so that the work can run well and smoothly.

Research methods

This study uses a qualitative descriptive research method. Qualitative research is a method for investigating in detail a social or humanitarian problem. The core process of qualitative research consists of asking questions, collecting data from participants, and interpreting the meaning of the data (Creswell, 2014:5). Meanwhile, the qualitative descriptive research method is the method used to describe, explain, and explain in more detail the problems studied (Sugiyono, 2016:9). The flow of this research begins with determining the research focus, namely student's critical thinking skills in accounting learning, conducting a literature review related to critical thinking skills and accounting learning, compiling research instruments in the form of tests and interview guidelines, collecting field data, and analyzing research data.

This research was conducted at VHS 1 Ngawi, East Java, Indonesia with the research subjects of class XI students majoring in Financial and Institutional Accounting. The research sample amounted to 32 students. Data collection techniques consisted of observation, tests, and unstructured interviews (open interviews). Unstructured interviews are free interviews whose

interview guidelines only include an outline of the problems to be asked (Sugiyono, 2019: 217). Interviews were conducted with teachers who teach Financial Accounting subjects. The observation activities were carried out to find out how the daily learning activities of students at school.

The critical thinking ability test instrument that was compiled combines Facione's critical thinking ability indicators with Financial Accounting material which is limited to basic competence 3.8, namely Implementing Inventory Recording. The critical thinking ability test instrument measures 6 aspects of student's abilities, namely interpretation, analysis, evaluation, inference, explanation, and self regulation. Before being used, the test instrument must pass the validity test phase which consists of content and construct validity.

Content validity was carried out by expert validator lecturers of Faculty of Teacher Training and Education, Sebelas Maret University and teacher in Financial Accounting subjects at VHS 1 Ngawi. The construct validity was carried out by the expert validator lecturer in the evaluation of Faculty of Teacher Training and Education, Sebelas Maret University. The results of the content validity test showed a percentage of 93.64%. The results of the measurement validity test showed a percentage of 84%. Both of them received the very appropriate predicate so that the instrument could proceed to the limited trial stage to determine the level of difficulty and discrimination power of the items. The level of difficulty and discrimination power was carried out using the Anbuso application. The results of the level of difficulty and differentiating power are listed in Table 1.

Table 1. Results of Difficulty Level and Discrimination Power

No .	Discrimination Power		Level of Difficulty		Conclusion
	Coefficient	Description	Coefficient	Description	
1	0,255	Pretty Good	0,742	Easy	Worthy
2	0,112	Not Good	0,555	Medium	Unworthy
3	0,000	Not Good	0,333	Medium	Unworthy
4	0,432	Good	0,552	Medium	Worthy
5	0,346	Good	0,422	Medium	Worthy
6	0,005	Not Good	0,135	Difficult	Unworthy
7	0,363	Good	0,625	Medium	Worthy
8	0,086	Not Good	0,625	Medium	Unworthy
9	0,070	Not Good	0,523	Medium	Unworthy
10	0,373	Good	0,135	Difficult	Worthy
11	0,380	Good	0,406	Medium	Worthy
12	0,380	Good	0,563	Medium	Worthy

After calculating the differentiating power and the level of difficulty, some questions are not suitable for use and must be discarded. Meanwhile, questions that are suitable for use will then be used as test instruments to collect data in the field.

Results and Discussion

The results showed that the level of student's critical thinking skills on the 6 aspects tested was still unsatisfactory. The results of the analysis of student's answers are presented in Table 2.

Table 2. Analysis of Student Answers

No.	Critical Thinking Aspects	Analysis Result
1	Interpretation	47,5%
2	Analysis	53%
3	Evaluation	27%
4	Inference	40%
5	Eksplanation	33,5%
6	Self Regulation	52%
Average		42,2%

Based on Table 2, it is known that the student's interpretation aspect is at the level of 47.5%. The interpretation aspect measures the understanding and ability of students to express the meaning of a thing, event, problem, or experience (Facione, 2015:5). The interpretation aspect of the test instrument compiled by the researcher measures the ability of students to express the meaning of inventory. The results of the analysis show that students still lack mastery of interpretation skills. Students are still not maximal in expressing the meaning of inventory using their language. Their answers tend to be similar to the definition of inventory in books or the definition of inventory mentioned by experts.

Furthermore, the analysis aspect of students is at the level of 53%. The analysis aspect measures the ability of students to describe a relationship, concept, information, idea, reason, and assessment (Facione, 2015:5). The analysis aspect is the highest aspect that is mastered by students among other aspects, although the percentage also tends low. Aspects of analysis in the test instrument prepared by the researcher measure the ability of students to describe the inventory classification along with examples from a company mentioned in the problem. The results of the analysis of student's answers show that there are still many students who are not in sync in mentioning the classification and inventory examples.

Furthermore, the evaluation aspect of students is at the level of 27%. The evaluation aspect is the lowest aspect possessed by students among other aspects. Facione (2015:5) explains that the evaluation aspect includes the ability of students to assess the credibility of information

sources, make decisions or policies, and assess whether the existing evidence is sufficient to support conclusions. The evaluation aspect of the test instrument that is compiled measures the ability of students to make decisions in the problems presented. The results of the analysis of student's answers show that the majority of students have not been able to make the right decisions. The results of the analysis show that students do not master the material so they tend to be careless in making decisions and cannot mention the logical reasons behind making these decisions.

Then the aspect of student inference is at the level of 40%. Inference means identifying all sources of information to conclude, provide solutions to the problems encountered, build hypotheses, and conduct experiments to confirm or refute the hypothesis (Facione, 2015:5). The inference aspect in the test instrument that has been prepared measures the ability of students to provide a solution to a problem related to inventory. The results of the analysis of student's answers indicate that the solutions proposed by students are still not appropriate for overcoming the problems that occur.

The explanation aspect is at the level of 33.5%. This aspect is the second-lowest aspect after the evaluation aspect. An explanation is an activity of presenting the results of reasoning convincingly and coherently. Explanation includes the ability to explain causally and conceptually an event, explain the methods and results of an experiment, and provide strong and reasoned arguments (Facione, 2015:5). The explanatory aspect of the test instrument prepared by the researcher measures the ability of students to explain the effect of the inventory delivery system on the company's bookkeeping or journaling. Based on the results of the analysis of student's answers, it was found that the majority of students had not been able to explain properly and completely how the effect of the inventory delivery system on the company's bookkeeping or journaling.

The last aspect is self-regulation. This aspect is at the level of 52% and is the second-highest aspect after the analysis aspect. However, the percentage of self-regulation aspects also tends low. Facione (2015:5) explains that self-regulation is an activity that corrects one's reasoning. Furthermore, Facione mentions that self-regulation includes activities to check sensitivity and self-view to a problem, monitor how well one understands a reading or experience, separate personal opinions, and assumptions, revise work results that are not appropriate, and change conclusions when an error occurs in the assessment. . Based on the results of the analysis of student's answers, it was found that there are still many students who do not have sensitivity to the problems that are currently happening. This makes them less than optimal in solving problems logically.

Based on the test results that have been described above, it is known that the critical thinking ability of students in accounting learning still tends low. The average critical thinking ability of students only reached 42.2%. These results are following the World Economic Forum report on Indonesia's global competitiveness index which tends to be low on skills indicators.

Indonesia only ranks 65th out of 141 countries (Schwab & World Economic Forum, 2019:15). The 2018 PISA report data states that Indonesia's scores on reading, Mathematics, and Science skills have tended to decline in recent years. Indonesia's ranking also lags behind several neighboring countries. In comparison, the average scores of Singapore, Malaysia, Brunei Darussalam, and Thailand in reading, Mathematics, and Science skills are 556, 431, 423, and 413. Meanwhile, Indonesia's average score is only 364 (Organization for Economic Co-operation Development, 2018).

The low critical thinking ability of students is caused by several factors. Based on the results of observations in schools, it is known that teachers still use conventional learning models. The teacher explains the material in front of the class and the students just passively listen. This makes it easy for students to feel bored and lazy to listen to the lesson. When the teacher asks questions, the majority of students are silent and do not answer. Likewise when the teacher allows asking questions. The impact is that very few students understand the learning material. In addition, the results of observations also found that the questions prepared by the teacher for the exam were still at the Low Order Thinking Skills (LOTS) level. Problems only require the ability of students to memorize learning material or apply the formulas they have learned. This makes students not accustomed to working on questions that require deeper thinking skills, so that their critical thinking ability test results tend to be low.

These findings imply that first the teacher must organize active learning in the classroom. Daouk et al., (2016) explained that students should have more opportunities to participate in learning. The teacher's role should be as a facilitator, not as a conduit of information. This is because active learning will make students understand the subject matter better, improve communication skills and decipher arguments. Arslan et al., (2014) reveal several active learning strategies that can accommodate critical thinking skills, namely cooperative learning, problem-based learning, conference-based learning, classroom evaluation techniques where teachers and students both provide feedback at the end of the lesson, and essay writing activities that require students to express their thoughts.

Second, the questions used in the exam must be based on Higher Order Thinking Skills (HOTS). Based on Bloom's taxonomy which was later revised by Anderson and Krathwol, HOTS-based questions are at the level of C4 analyzing, C5 evaluating, and C6 creating (Yani, 2019:7). HOTS-based questions can contain questions that encourage students to think further about the causes of something happening, compare one concept with another, describe alternative ideas, and collect data/facts/other supporting evidence (Ariyana et al., 2018:37). HOTS-based questions can help students empower critical thinking skills because these questions encourage students to think deeply about the material they are studying. HOTS questions also require students to review and rethink factual material in a more complex way of thinking. Therefore, HOTS questions are different from other types of questions that only rely on memory and knowledge skills (Barnett & Francis, 2012).

Third, the use of games that can stimulate decision-making and problem-solving skills in learning. Cozine (2015) tries to insert role-playing games in learning to develop student's critical thinking skills. The results showed that game-based learning could help students understand the material better, enhance the learning experience, and encourage student involvement in learning. Games also train student's ability to make decisions and solve problems well. In addition, games also make students able to connect and apply the material they have learned with reality in the real world. Their brainstorming and discussions to find problem-solving strategies can also make students develop their critical thinking skills.

Fourth, teacher can stimulates students to practice issuing their arguments against a contextual problem. The ability to express arguments accompanied by ideas, analysis, and supporting evidence from various points of view must be developed. Davies and Barnett (2015) reveal that although argumentation skills are not the entirety of critical thinking skills, they are at the core. This is because argumentation skills are very complicated and complex, so they require deeper and critical reasoning and thinking. Not everyone has this skill. Even smart students do not necessarily master this skill. Therefore, argumentation skills must be developed because these skills are the core or center of critical thinking skills.

Conclusion

The results showed that the average critical thinking ability of students at VHS 1 Ngawi was still relatively low, especially in learning accounting. The average critical thinking ability of students on the indicators of interpretation, analysis, evaluation, inference, explanation, and self-regulation only reached 42.2%. Based on the results of observations in schools, the low critical thinking ability of students is caused by several factors. These factors include teachers still using conventional learning models so that students tend to be passive in learning. Another factor is that the questions prepared for the exam are still at the Low Order Thinking Skills (LOTS) level which only requires student's understanding and memory of the subject matter.

The findings of this study imply that first the teacher must carry out active learning in the classroom where the teacher's role should be as a facilitator, not as a transmitter of information. Second, the questions used in the exam must be based on Higher Order Thinking Skills (HOTS) which includes indicators C4 (analysis), C5 (evaluation), and C6 (creation). Third, the use of games that can stimulate decision-making and problem-solving skills in learning. Fourth, there is an activity where students practice issuing their arguments against a contextual problem. If teachers and schools can apply these methods, it is hoped that the ability of students can increase over time.

Contributions/Originality

The ability to think critically is one of the most needed skills in the 21st century. Good critical thinking skills will make it easier for students to find a job. Especially for students in Vocational High Schools who are projected to be able to work immediately after they graduate. However, research proves that the critical thinking ability of students in Indonesia is still relatively low. Therefore, it is important to pay attention to the learning system implemented in schools today. Conventional learning systems certainly cannot be relied on to stimulate and develop student's critical thinking skills. Based on the findings, this article presents several suggestions for improving learning activities that teachers can do to develop students' critical thinking skills.

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