



Improving Responsibility and Mathematical Critical Thinking of Grade IV A Students of SDN Kentungan Through Contextual Learning Model

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Abstract

This study aimed to 1) describe efforts to improve the students' responsibility and critical thinking through the application of a contextual learning model; 2) improve the responsibility of fourth-grade students through the application of contextual learning models; 3) improve the critical thinking of fourth-grade students through the application of contextual learning models. The type of this research was Classroom Action Research (CAR). The subjects of this study were 24 grade IVA students of SDN Kentungan in the 2020/2021 Academic Year. The instruments used in this study were questionnaires and observation sheets. The data analysis technique was descriptive quantitative. The results showed that: 1) Efforts to increase students' responsibility and critical thinking have been successfully carried out by using the contextual learning model through the following steps; a) Relating, b) Experiencing, c) Cooperating, d) Applying, e) Transferring. 2) The application of a contextual learning model improved the students' responsibility. It could be seen from the increase in the average score for the initial conditions of 53,3% (less responsible). In the first cycle, it increased to 60.3% (Sufficiently Responsible). Then, in the second cycle, it increased to 73.5% (responsible). 3) The application of a contextual learning model improved the students' critical thinking. It could be seen from the increase in the initial condition average score of 56.2% (less critical). In the first cycle, it increased to 60.1% (quite critical), and in the second cycle, it increased to 71.85% (critical).

Keywords: responsibility, critical thinking, contextual learning model

Peningkatan Tanggung Jawab dan Berpikir Kritis Mata Pelajaran Matematika Pada Siswa Kelas IV A SDN Kentungan Melalui Model Pembelajaran Kontekstual

Abstrak

Penelitian ini bertujuan untuk: 1) mendeskripsikan upaya peningkatan tanggung jawab dan berpikir kritis siswa melalui penerapan model pembelajaran kontekstual; 2) meningkatkan tanggung jawab siswa kelas IV melalui penerapan model pembelajaran kontekstual; 3) meningkatkan berpikir kritis siswa kelas IV melalui penerapan model pembelajaran kontekstual. Jenis penelitian ini adalah Penelitian Tindakan Kelas (PTK). Subjek penelitian ini adalah siswa kelas IV SDN Kentungan tahun pelajaran 2020/2021 yang berjumlah 24 siswa. Instrumen yang digunakan dalam penelitian ini adalah kuesioner dan lembar observasi. Teknik analisis data yang digunakan pada penelitian ini adalah deskriptif kuantitatif. Hasil penelitian menunjukkan bahwa: 1) Upaya peningkatan tanggung jawab dan berpikir kritis siswa telah berhasil dilakukan dengan menggunakan model pembelajaran Kontekstual melalui langkah-langkah sebagai berikut; a) *Relating*, b) *Experiencing*, c) *cooperating*, d) *Applying*, e) *Transferring*. 2) Penerapan model pembelajaran kontekstual dapat peningkatan tanggung jawab siswa. Hal tersebut dapat dilihat dari peningkatan skor rata-rata untuk kondisi awal sebesar 53,3% (kurang bertanggung jawab), pada siklus I meningkat menjadi 60,3% (cukup bertanggung jawab), dan pada siklus II meningkat menjadi 73,5% (bertanggung jawab). 3) Penerapan model pembelajaran kontekstual dapat peningkatan berpikir kritis siswa. Hal tersebut dapat dilihat dari peningkatan skor rata-rata kondisi awal sebesar 56,2% (kurang berpikir kritis), pada siklus I meningkat menjadi 60,1% (cukup berpikir kritis), dan pada siklus II meningkat menjadi 71,85% (berpikir kritis).

Kata kunci: tanggung jawab, berpikir kritis, model pembelajaran kontekstual

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INTRODUCTION

It is written in Act No. 20 Year 2003 on the National Education System article 1, section 1: "1. Education means conscious and well-planned effort in creating a learning environment and learning process so that learners will be able to develop their full potential for acquiring spiritual and religious strengths, develop self-control, personality, intelligence, morals, and noble character and skills that one needs for him/herself, for the community, for the nation, and for the State." In article 3 Chapter II of the Education Act of the Republic of Indonesia on National Education System, it is stated that the national education functions to develop the capability, character, and civilization of the nation for enhancing its intellectual capacity, and is aimed at developing learners' potentials so that they become persons imbued with human values who are faithful and pious to one and only God; who possess morals and noble character; who are healthy, knowledgeable, competent, creative, independent; and as citizens, are democratic and responsible. Referring to the article, it can be interpreted that education is an effort done to develop an individual's whole potential that the qualified Human Resources (HR) are formed. One of the efforts that can be made by all education providers in order to achieve this is to instill and foster the values of Pancasila in students through learning activities.

As explained by Linkona (in Fitri, 2012: 11), education should have an impact on building the students' character. This can be seen from the success of education, showing the indicators of achievement, one of which is students' responsibility. Responsibility needs to be instilled from an early age as this is an attitude containing in the affective realm. According to Kunandar, (2014: 104) the affective domain is a domain related to attitudes and values. The affective domain includes behavioral characteristics such as feelings, interests, attitudes, emotions, and values. Attitude determines an individual's learning success. People who have interests and attitudes to certain lessons will easily succeed in that learning process. However, in fact, there are still issues with attitudes like the

low level of responsibility in students. This can be concluded through interviews with a IVA homeroom teacher at SDN Kentungan. The impact of low students' responsibility during the learning process was shown by a set of attitudes such as not carrying out and handing in tasks seriously as well as not willing to bear the consequences of their own attitudes, words, and behavior.

Based on that interview conducted on November 16th 2020, most of the students still had responsibility issues. These problems were faced in the classroom including not collecting assignments punctually, not following teacher directions during learning activities, and students were less active in delivering questions and opinions. Students' understanding was still low on the rounding of measurement results for units of length and weight. The students still found it difficult to use and complete it. Besides, the students still had difficulty in connecting and developing the ability to think with real life in order to solve story-based questions for the same topic. The ability to think critically is not innate, and cannot develop by itself, yet only by the learning and training process (Mujis, 2008). The ability to think critically has indicators as explained by Wowo (2012: 198) namely 1) identifying the focus of the problem, question, and conclusion, 2) analyzing arguments, 3) questioning and answering classification questions or challenges, 3) identifying decision and handling it from its reason, 4) observing and assessing observation reports, 5) concluding and assessing observation reports, 6) considering reasons without allowing disagreements or doubts that interfere with thinking (thinking that is a right thought), 7) integrating other abilities and dispositions in making and defending decisions. While conducting interviews with a IVA homeroom teacher at SDN Kentungan, it was found that grade IVA students still had difficulty in analyzing arguments of story-based questions. Other than that, during the learning process, some students were also unable to ask questions. The majority of them still had difficulty in solving problems of the story-based questions presented by the teacher too.

As elaborated above, it is significant to have a learning method that encourages students to be more responsible and think critically. One of the models recommended by researchers is contextual teaching and learning model. Contextual is a learning system aiming to motivate students to understand the meaning of subject matter by relating these materials to the student's real world or everyday life. According to Hosnan (2014: 267), contextual is a learning concept that assists teachers to link the studied material with the students' real world as well as connect the knowledge and application in everyday life. Based on research conducted by Setiawan (2019) entitled CTL Approach in Improving the Critical Thinking Skills of Elementary School Students in Mathematics, it is proven that the use of the CTL or contextual learning model could improve the critical thinking ability of average of 71 and the classical criteria of mastery learning percentage of 57.14% in Cycle 1. In cycle II, the critical thinking ability was 87.62 and the classical criteria of mastery learning reached 90.48%. It is inferred that the use of a contextual approach was able to improve students' critical thinking skills on Highest Common Multiple (FPB) and Lowest Common Multiple (KPK) in class VI SD Negeri 14 Empaci in the 2018/2019 academic year.

The problem formulation in this study is how to improve the responsibility and mathematical critical thinking skills of IVA grade students at SDN Kentungan academic year 2020/2021 using contextual learning models? Can the implementation of a contextual learning model improve the responsibility of grade IVA students at SDN Kentungan academic year 2020/2021 in Mathematics? Can the use of a contextual learning model improve the mathematical critical thinking skills of grade IVA students at SDN Kentungan academic year 2020/2021?

The goal of this study is to describe the efforts aimed to increase the responsibility and mathematical critical thinking skills of grade IVA students at SDN Kentungan academic year 2020/2021 employing a contextual learning model. Besides, it is to find out the improvement of responsibility of grade IVA

students at SDN Kentungan academic year 2020/2021 in Mathematics using a contextual learning model. It is also to find out the improvement in the critical thinking skills of the same subject employing the same learning method.

Notion of Responsibility

Narwanti (2011: 30) defines responsibility as the attitude and behavior of a person carrying out duties and obligations, which oneself must do, towards the self, society, and the environment. Zubaedi (2011: 78) explains that responsibility means being able to take responsibility and have the feeling to fulfill duties with trustworthiness, independence, and commitment. Meanwhile, responsibility to Kurniasih (2014: 69) means the attitude and behavior of a person to fulfill duties and obligations that should be done to oneself, society, the environment (natural, social, and cultural), the country, and God Almighty. Referring to the explanation from those experts, it can be inferred that responsibility is the attitude and behavior to carry out duties and obligations at their best and this responsibility they have is an action that makes humans be more independent and be trusted apparently.

Indicators of Responsibility

As stated by Narwati (2011: 69), there are two indicators of responsibility, namely: 1) carrying out tasks according to rules or agreements, and 2) being responsible for all actions. The Ministry of National Education 2010 (in Maulida, 2014: 44) explains the indicators of responsibility consisting of: 1) making reports on every completed activity in oral or written form; 2) performing tasks without prompting; 3) demonstrating initiatives to address problems in the closest setting; 4) avoid cheating while carrying out duties.

On the other hand, Fitri (2012: 43) elaborates the indicators of responsibility as follows: (1) doing tasks and homework well, (2) taking responsibility for every action, (3) doing group assignments altogether, and (4) admitting and apologizing for mistakes. Besides, Kurniasih (2014: 69) explains that the

indicators of responsibility consist of: (1) carrying out individual duties properly, (2) accepting risks from actions, (3) not blaming or accusing others without accurate evidence, (4) returning borrowed items, (5) not blaming others for our own mistakes, and (6) carrying out commands without being asked or requested to do so.

Based on the indicators of responsibility elaborated by those experts, the researchers conclude that the indicators consist of: (1) completing tasks according to the given instructions by the teacher, (2) completing and collecting assignments punctually, (3) accepting risks from actions during learning, and (4) acknowledging mistakes that have been made.

Notion of Critical Thinking

Johnson (2007: 185) claims that critical thinking is the ability to convey an idea confidently as it has logical reasons and strong evidence. Meanwhile, Susanto (2013: 121) defines critical thinking as an activity done through thinking about ideas related to concepts or problems. Besides, according to Halpen (in Susanto, 2013: 122), critical thinking means empowering cognitive skills or strategies to find a goal. Anggelo (in Susanto, 2013) defines critical thinking as implementing higher-order thinking activities including analyzing, recognizing and solving problems, concluding, and evaluating. While Ennis (in Susanto, 2013: 121) explains that critical thinking is a form of thinking aiming at obtaining reasonable decisions regarding certain events or problems.

Referring to the explanation from those experts, the researchers infer that critical thinking is the ability to think of analyzing, recognizing and solving problems, concluding, as well as evaluating.

Indicators of Critical Thinking

Ennis (in Susanto, 2013: 125) explains that there are twelve indicators of critical thinking which are summarized in five critical thinking categories, including 1) delivering simple explanations consisting of: a) focusing questions, b) analyzing questions, c) questioning and answering about certain

explanation or challenge; 2) developing basic skills which include: a) considering whether or not the resource can be trusted, b) observing and considering observation reports; 3) concluding which consists of: a) deducing and taking account its results, b) inducing and considering its results, c) making and determining the value of the considerations; 4) providing further explanation which includes a) defining terms and considering definitions in three dimensions, b) identifying assumptions; 5) setting strategies and tactics including: a) determining actions, b) interacting with people.

Besides, Wowo (2012: 198) elaborates critical thinking indicators as identifying the focus of problems, questions, and conclusion; analyzing arguments; asking and answering classification or challenge; identifying decision and handling its reasons; observing and assessing observation reports; concluding and assessing observation reports; considering reasons without allowing disagreements or doubts to interfere with thinking (thinking that is a right thought); as well as integrating other abilities and dispositions in making and defending decisions.

Based on the experts' categorization regarding the indicators of critical thinking, the researchers choose five indicators as the focus of classroom action research, namely 1) analyzing arguments, 2) being able to ask, 3) being able to answer questions, 4) solving problems, and 5) drawing conclusions.

Notion of Contextual Learning Model

Priansa (2017: 274) explains that contextual comes from the word "contest" which can be interpreted as part of elaboration or sentence supporting or clarifying the meaning of situations related to events. Meanwhile, Johnson (in Rusman, 2016: 187) defines contextual learning as a system that stimulates the brain to compose actual patterns. Muslich (2007: 41) states that contextual learning is a learning concept that allows teachers to link learning materials with students' real-world situations, and encourages students to make connections between their knowledge and its application in day-to-day life. According to Sanjaya (2011:

255), contextual is a learning model that emphasizes the process of students' full engagement to be able to understand the material and relate it to real life situations. Thus, it encourages students to be able to implement it in their lives.

Nurhadi (2003: 13) believes that the contextual approach (Contextual Teaching and Learning - CTL) is a learning concept in which the teacher brings the actual world into the classroom and encourages students to link their knowledge to its application in their daily basis. While students are gaining knowledge and skills from a limited context, gradually by the construction process itself, they have the ability to solve problems in life as a part of society. According to Suprijono (2009: 78), contextual learning or Contextual Teaching and Learning (CTL) is a concept that helps teachers connecting the material to real world situations and encourages students to make links between their knowledge and its application in their lives as a part of family and community.

Referring to the opinions above, the researchers conclude that contextual is a learning model that involves students directly and assists them to connect their learning with their actual life. Thus, it can encourage students to be able to implement it in their lives.

Procedure of Contextual Learning Model

According to Hamdayama (2014: 51), the contextual learning process consists of: (1) relating, connecting what is learned in class with students' own experiences, thus the learning process will be more meaningful; (2) experiencing, doing something meaningful; (3) studying independently; (4) cooperating, studying in groups; (5) applying, thinking critically; (6) transferring, providing opportunity to develop students' talents; (7) high standards of achievement; and (8) authentic assessment. Meanwhile, Shoimin (2014, 41) reveals five contextual learning strategies, namely: relating, experiencing, applying, cooperating, and transferring.

In this study, the researchers focused more on five contextual approach steps, namely: (1) relating, (2) experiencing, (3)

cooperating, (4) applying, (5) transferring. In addition, seven components were used. They were (1) constructivism, (2) finding, (3) asking, (4) learning society, (5) modeling, (6) reflection.

METHOD

In this study, researchers conducted classroom action research (CAR). The procedure consisting of four main activities or stages namely plan, action, observation, and reflection. The subjects of this study were 24 students of grade IVA at SDN Kentungan. The object of this classroom action research was the ability to think critically and be responsible in Mathematics.

Data collection technique

This study employed interviews, observation, and questionnaires in data collection. Detail procedure can be visualized in Figure 1.

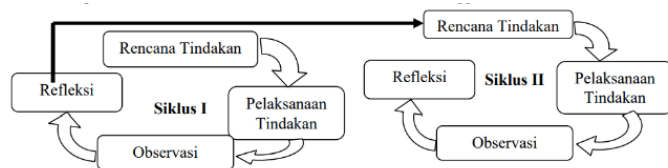


Figure 1. Action Research Procedure

FINDINGS AND DISCUSSION

This was classroom action research (CAR). This classroom action research was done in two cycles, one meeting for each. Cycle I was held on Monday, January 18th 2021 and cycle II was carried out on Monday, January 25th 2021.

The average score for the initial condition for responsibility and critical thinking of grade IVA students at SDN Kentungan as follows:

Table 1. The average score for the initial condition for responsibility

Variable	Instrument	Result	Criteria
Responsibility	Observation sheets	37.5%	Less Responsible
	Questionnaire	69.05%	Sufficiently Responsible
Average		53.3%	Less Responsible

Table 2. The average score for the initial condition for critical thinking

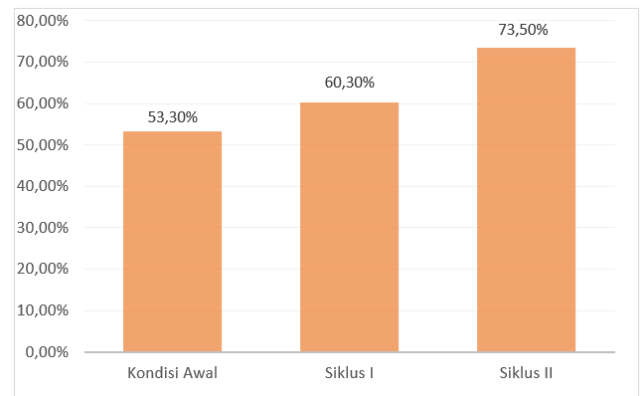
Variable	Instrument	Result	Criteria
Critical Thinking	Observation sheets	42.5%	Less Critical
	Questionnaire	69.9%	Sufficiently Critical
Average		56.2%	Less Critical

Improvement of Students' Responsibility

The improvement of students' responsibility through the use of contextual learning model can be seen from various activities done by students using zoom meetings and WhatsApp. They were 1) precisely completing assignments. After using zoom meetings, students must complete their assignments on time by sending photos or videos to WhatsApp in the period specified by the researchers; 2) completing the assignment according to the teacher's instructions; 3) accepting the risks of their actions during the lesson and 4) acknowledging mistakes that have been made. This is in line with Zubaedi's opinion on responsibility. [Zubaedi \(2011: 78\)](#) states that responsibility means being able to take responsibility and have a willingness to fulfill duties trustworthily, independently and committed.

The researchers' attempt to collect data in order to level up the responsibility of fourth grade students at SD Negeri Kentungan was done through conducting observation and distributing questionnaires. After completing the research in two cycles, the researchers obtained the average score for the initial condition of 53,3% for students' responsibility which indicates less responsible. After the researchers implemented contextual learning model, in the first cycle, an average score of 60.3% was gained, showing a sufficiently responsible category. In the second cycle, the average score of 73.5% for students' responsibility was achieved, this score indicated the category of responsible. Furthermore, among 24 fourth grade students of SD Negeri Kentungan, after the researchers took an action using a contextual learning model, they became more responsible. This can be seen in the achievement graph of

students' responsibility taken from data of the observation and questionnaires.

**Figure 2.** Students responsibility improvement

In Figure 2 above, there is an obvious improvement from the initial condition, cycle I, and cycle II.

Improvement of Critical Thinking

The improvement of students' critical thinking through the use of contextual learning model can be seen from various activities done by students using zoom meetings and WhatsApp. They were analyzing friends' arguments and opinions, asking the teacher when they did not understand the material, answering questions from the teacher, solving given problems, and drawing conclusions in the lesson. This is in line with Sanjaya's opinion about contextual. [Sanjaya \(2011: 255\)](#) defines contextual as a learning model that emphasizes the process of students' full engagement to be able to understand the material and relate it to real life situations.

The researchers' attempt to collect the data in order to level up the responsibility of fourth grade students at SD Negeri Kentungan was done through conducting observation and distributing questionnaires. After completing the research in two cycles, the researchers obtained the average score for the initial condition of 56.2% of students' critical thinking, indicating the category of less critical. After the researchers implemented contextual learning model, in the first cycle, an average score of 60.1% was obtained, this score indicates sufficient critical category. In the second cycle, the average score was 71.85% showing the critical category. Of the 24 fourth

grade students of SD Negeri Kentungan, the score always increased in each cycle. This can be seen in the achievement graph of students' critical thinking taken from data of the observation and questionnaires.

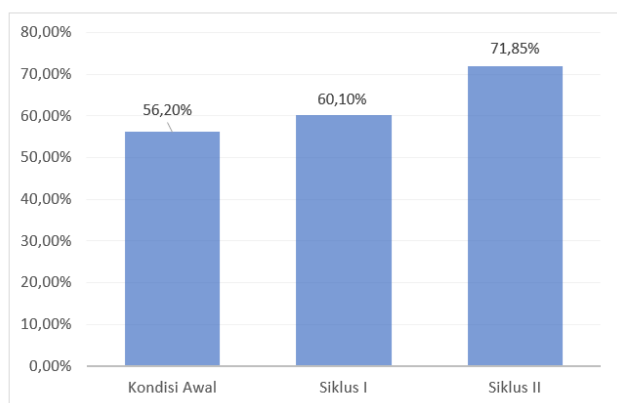


Figure 3. Student Critical Thinking Improvement

In Figure 3 above, there is an obvious improvement from the initial condition, cycle I, and cycle II. The researchers collected the results from cycle I and cycle II to make it easier to observe if it reaches the objectives of this study. Researchers portrayed the results and target of responsibility and critical thinking of fourth grade students of SD Negeri Kentungan in Table 3 as follows.

Table 3. Data of students' responsibility and critical thinking

Variable	Initial Condition	Cycle 1		Cycle II	
		Expected Score	Score	Expected Score	Score
Responsibility	53,3%	60%	60.3%	70%	73.5%
	Less Responsible	Sufficiently Responsible	Sufficiently Responsible	Responsible	Responsible
Critical Thinking	56.2%	60%	60.1%	70%	71.85%
	Less Critical	Sufficient Critical	Sufficient Critical	Critical	Critical

Based on the table above, the researchers have a score for the initial condition of students' responsibility of 53,3% indicating less responsible. After the researchers used contextual learning model, in the first cycle, an average score of 60.3% is obtained. This score indicates the sufficiently responsible category. In the second cycle, an average score of 73.5% of students' responsibility is achieved, indicating the category of responsibility.

Meanwhile, the average score for the initial condition for critical thinking is 56.2% indicating the category of less critical. After the researchers implemented contextual learning model, in the first cycle, an average score of 60.1% is gained, this score indicates the sufficient critical category. In the second cycle, the average score of students' responsibilities is 71.85%, showing the critical category. Therefore, based on results in each cycle, the scores for responsibility and critical thinking skill of students increased in each cycle.

The use of zoom meetings and whatsapp is very influential in increasing the responsibility and critical thinking of students who have shown an increase every cycle. With the use of zoom meetings, students can come face to face virtually during learning, using WhatsApp is not only limited to assigning tasks, but as a medium for communicating in learning. Children ask questions, give opinions, make conclusions using whatsapp. The application of a contextual learning model that connects student life with lessons also helps students in online learning as it is today.

CONCLUSION

Referring to the results of the study, discussion, and data analysis regarding "Improving Responsibility and Mathematical Critical Thinking of Grade IVA Students of SDN Kentungan through Contextual Learning Model" it can be inferred as follows: (1) Attempts to improve students' responsibility and critical thinking have been successfully done in grade IV SD Negeri Kentungan by implementing contextual learning model following syntax steps; (a) Relating, connecting what is learned in class with students' own experiences, thus the learning process will be more meaningful; (b) Experiencing, doing something meaningful; (c) Cooperating; (d) Applying, encouraging to think critically, (e) Transferring; (2) The implementation of contextual learning model could level up the responsibility of grade IV SD Negeri Kentungan students in Mathematics. The average score for the initial conditions was 53,3% (responsible). In the first cycle, an average score of 60.3% (sufficiently responsible) was obtained. In the second cycle, the average score of students'

responsibilities was 73.5% (responsible); (3) The implementation of contextual learning model could level up the critical thinking of grade IV SD Negeri Kentungan students in Mathematics. The average score for the initial conditions was 56.2% (less critical). In the first cycle, the average score was 60.1% (sufficient critical). In the second cycle, the average score of students' critical thinking was 71.85% (critical).

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