



DEVELOPMENT OF CRITICAL THINKING TEST INSTRUMENT READING USING THE GRAPHIC ORGANIZER MEDIA

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ABSTRACT

Critical thinking is sensible thinking that focuses on deciding what they should do. This research method uses the 4-D model proposed by Thiagarajan and Semmel with four stages consisting of define, design, development and disseminate. This study only evaluates validators in the value of test instruments with research results assessed by validators about the contents of critical thinking test instruments with an average of 87.5 in the very feasible category, while in the validation results the presentance of critical thinking assessment instruments with an average of 98% in the very decent category. For this reason, it was concluded that the critical thinking test reading instrument with graphic organizer media was appropriate to be used to measure students' abilities in critical thinking.

Keywords: *instrumet test, critical thinking, graphic organizer*

ABSTRAK

Critical thinking merupakan pemikiran yang masuk akal yang berfokus untuk memutuskan apa yang harus mereka lakukan. Metode penelitian ini menggunakan model 4-D yang dikemukakan oleh Thiagarajan dan Semmel dengan empat tahapan yang terdiri dari define, design, development dan disseminate penelitian ini hanya penilaian validator dalam nilai instrument tes dengan hasil penelitian yang dinilai oleh para validator tentang isi instrument tes critical thinking dengan rata-rata 87.5 dengan kategori sangat layak, sedangkan pada hasil validasi penyajian intrumen penilaian critical thinking dengan rata-rata 98% dengan kategori sangat layak. Untuk itu maka disimpulkan bahwa intrumen tes critical thinking membaca dengan media graphic organizer layak digunakan untuk mengukur kemampuan siswa dalam critical thinking.

Kata Kunci: *instrumen tes, critical thinking, graphic organizer*

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INTRODUCTION

Thinking is a mental activity that involves the brain. Thinking activities also involve the entire human person and also involve human feelings and will. While the "Critical" in KBBI is sharp in the analysis, is not trusty, is always trying to find mistakes or mistakes. Richard Paul and Linda Elder (in Sari, 2013) in a paper titled "The Miniature Guide to Critical Thinking Concepts and Tools" defines critical thinking as an art of analytical and evaluation thinking that has the aim to improve. While Scriver and Paul mentioned that critical thinking is a good intellectual standard as a condition to participating fully in the social, economic and

political life in the environment in which we live. The demand of the 2013 curriculum for elementary school students is that they must be able to develop logic in thinking which is critical thinking of the problems given by the teacher to students. Some policies that develop students' way of thinking to be more critical in learning by holding several literacy programs that are developed basically are reading, as the first skill to be improved because the basic knowledge they can get is greater by reading that is able to store the most important information compared to the skills speak another language (Chong, 2017). About the enactment of the 2013 curriculum

which requires the world of education to continually update the curriculum so as not to be out of date. This outdated context refers to the needs of the education world for a curriculum that can adjust to the development of the 21st century (Rahayu, 2019).

The principle of preparing the 2013 curriculum refers to article 36 of Law No.20 of 2003, which states that the preparation of the curriculum must pay attention to the increase in faith and piety, increase in noble morals, increase in potential, intelligence, and interests of students, diversity of regional and environmental potentials, demands regional and national development, the demands of the world of work, the development of science, technology, and art, religion, the dynamics of global development, and national unity and national values (Kurniaman & Lazim, 2017). Critical thinking referred to faced with the problem here are of two kinds, problems that are academic and authentic. Academic problems are of course problems related to the realm of cognition they live. The problem of authentication is more the problem that they often encounter everyday around them. Students are required to be able to use their abilities to try to solve the problems they face independently, students also have the ability to compile and express, analyze, and solve problems (Khamkhong, 2018). So the importance of making instruments that are able to measure critical thinking in reading elementary school students, so that the results of this study benefit teachers to be able to measure themselves to the students they teach.

LITERATURE REVIEW

Critical Thinking or Critical Thinking is different from ordinary thinking, critical thinking is thinking that is more complex, deeper and sharp, critical thinking is thinking that has a higher cognitive level, namely connecting indicators to other indicators, which view the cause and effect of a problem that will later which will give birth to an idea or ideas and can also evaluate an event that will arise a way out in the form of a solution that is assembled and issued through the coherent and logical premises of a

Critical thinking is sensible thinking that focuses on deciding what to believe or do. Top-level thinking analysis, synthesis, and evaluation and remember facts or concepts that are factual (Sobkowiak, 2016). In the 2013 curriculum, teachers are required to develop critical thinking by providing tests that are HOTS (High order thinking skills) as a solution to practice higher-order thinking skills (Malik et al., 2018). In accordance with the demands of 21st-century skills students must have competence. Because competence is a skill related to the child's ability to face and handle the complex challenges that lie before him (Fadhillah, 2017). The exercises that must be done by students by providing a reading that can improve thinking skills. The use of graphic organizer to facilitate students in determining the main ideas in reading by making graphics to provide a picture in a reading (Kurniaman & Charlina, 2018) for that test instruments must be developed to measure critical thinking in reading. (Anazifa & Djukri, 2017; Bustami et al., 2018) said that learning activities in schools have not optimally increased students' critical thinking. More importantly, increased student creativity and critical thinking skills in reading that require understanding in reading texts. The making of this instrument will make it easier for teachers to measure the critical thinking abilities of elementary school students and provide an overview in making instruments in the form of graphic organizers that make it easier to analyze and students are also easier to make arguments from the questions given.

thought. According to Murti (2009), critical thinking is an intellectual thought process in which thinkers deliberately assess the quality of their thinking. It can be interpreted that critical thinking is thinking that is more complex, deeper and reasoned which is not just to know, but until the domain understands, applies, synthesizes and can even evaluate the right or wrong of a given/faced event.

Graphic Organizer is a visual communication tool that uses visual symbols to

express ideas and concepts, to convey meaning (Kurniaman and Charlina, 2019). This means that Graphic Organizer is a learning medium that projects learning material into symbols or lines that make up graphics, and users can also choose

to express ideas and concepts and the desired meaning of a material. This certainly makes it easier for students to understand learning, especially in understanding a reading text.

MATERIAL AND METHODS

The development model used in the development of this assessment instrument is a 4-D model proposed by Thiagarajan and Semmel with four stages consisting of Define, Design, Development, and Disseminate (Sugiyono, 2017). In this article discusses the stage of defining by developing a critical thinking test instrument in reading with the graphic organizer media at the validation stage which is assessed by experts and practitioners in accordance with their fields. The

aspect of validation assessed by the validator is made in the form of a rating scale. The type of scale used by researchers is a Likert scale. This Likert scale provides broad validators in assessing instructional materials developed by researchers. Questionnaire validation is determined by the average score given by the validator with a predetermined score of 1-4 (Kurniaman & Zufriady, 2019).

Table 1. Assessment Categories by Validator

Assessment Score	Category
4	very good
3	good
2	less good
1	not good

The guidelines for calculating the percentage of validator questionnaire scores are as follows:

$$Ps = \frac{n}{N} \times 100\%$$

(Imanuela dalam Amanah, 2012)

Information :

- Ps* = percentage score
- n* = total score obtained
- N* = maximum number of scores

Criteria in making decisions in validating critical thinking test instruments with graphic organizer media can be seen in table 2.

Table 2. Percentage of Critical Thinking Test Instrument Validity Criteria

Average interval score (%)	Category
81 – 100	very decent
61 – 80	decent
41 – 60	enough decent
21 – 40	less decent
0 – 20	not decent

RESULTS AND DISCUSSION

The results of this study will be presented by developing a critical thinking reading test instrument with a graphic organizer in grade IV elementary school. Based on the stages of

development, the description of the results of the study is divided into 3 parts: the defining stage, the design stage, and the development stage while the deployment stage has not been discussed in

this article, for more details, it can be described as follows.

The definition phase is carried out an analysis on two aspects, namely the analysis of needs and analysis of students. In the needs analysis, several analyzes include the curriculum, concepts, and tasks. Whereas in the analysis of students see the suitability of the critical thinking reading test instrument developed with the level of development of students. Curriculum analysis is carried out on Indonesian language learning objectives, competency standards, and basic competencies of Indonesian subjects specifically reading skills. Curriculum analysis is carried out to see the material coverage, objectives to be achieved from learning, and Indonesian language

learning strategies especially reading skills used in learning. The results of the analysis are used as a foundation in developing the contents of the test instrument content, for learning to fit the SK and KD contained in the Indonesian language curriculum about fleeting reading skills in grade IV elementary school, the curriculum used is the 2013 curriculum.

Based on the analysis at the defining stage, a critical thinking reading test instrument design was done using graphic organizer media for grade IV elementary school students. In developing this instrument first, make a discourse in accordance with the 2013 curriculum in the student book as shown below.

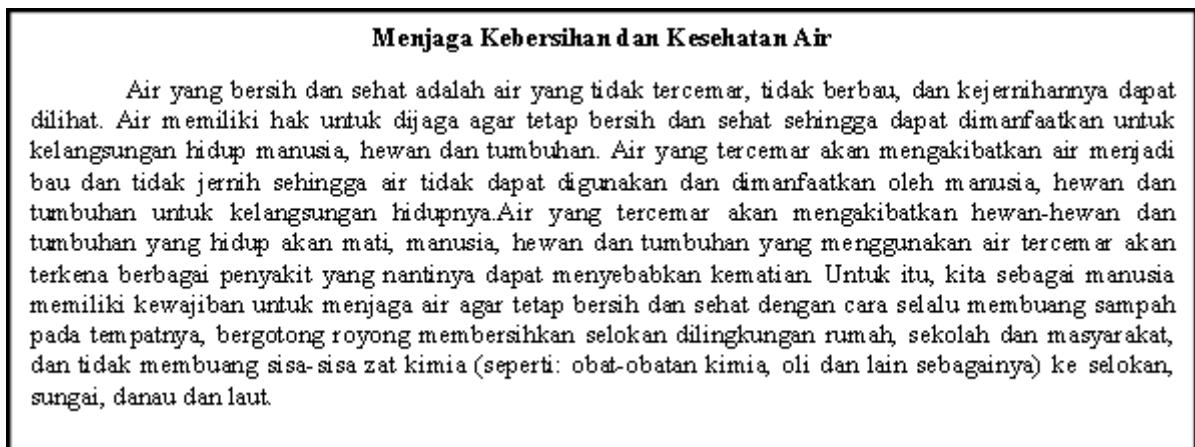


Figure 1. Text of Discourse in Reading

This discourse was created and adjusted to the basic competencies and competency standards in the 2013 curriculum, this discourse was also taken in the student book as reading material to provide an overview of "Maintaining

Water Hygiene and Health" students first read the text before they fill in the answers on the next sheet in the form graphic organizer that contains critical thinking questions shown in figure 2.

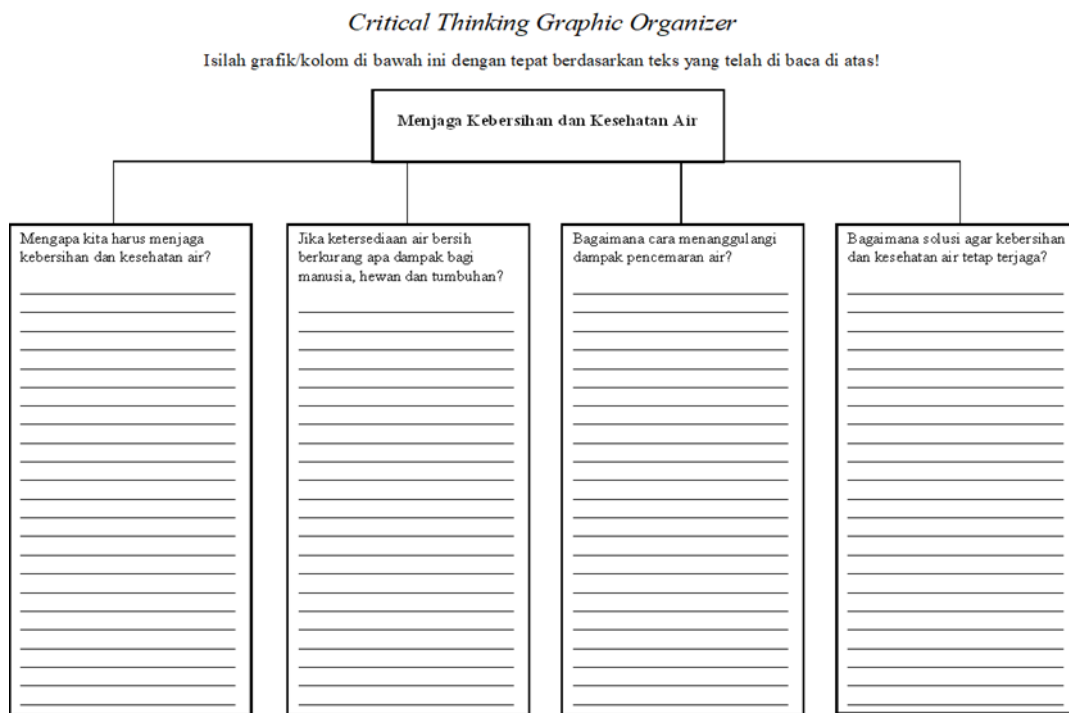


Figure 2. Graphic Organizer Test Instrument

The critical thinking test instrument designed was then validated by a validator. Validation was carried out by three validators from tertiary institutions and three from elementary school teachers. In this activity, experts and practitioners were asked to rate the

critical thinking reading test instrument that had been made. Assessment includes content, and presentation, validator is asked to rate on the contents of the critical thinking reading test instrument which consists of 4 assessment indicators as illustrated in table 3.

Table 3. Contents Validation Results for the Critical Thinking Test Instrument

No	Indicator	Score	Category
1.	Identifying the Initial Problem	4	very good
2.	Understanding Reasoning	3	good
3.	Clarify and interpret statements and ideas	3	good
4.	Identify conclusions	4	very good
Total		14	
Average		3.5	
Percentage		87.5	very decent

In table 3 is an assessment by the validator that contains the contents of the critical thinking test instrument reading on the indicators identifying initial problems with a score of 4, understanding reasoning with a score of 3, clarifying and interpreting statements and ideas with a score of 3, and identifying conclusions with a score of 4, with a mean the average

percentage of 87.5 with the category is very feasible to use to measure students' critical thinking in reading with a graphic media organizer. Subsequent assessments regarding the presentation and suitability of competency standards and basic competencies in the test instrument are in accordance with table 4.

Table 4. Results of Validation for Presentation of Critical Thinking Assessment Instruments

Aspect	Statement	Score	Total	Average	Decent Value (%)
Material	1. The questions by indicators of critical thinking skills	4	16	4	100%
	2. The questions given can lure students to think critically	4			
	3. The questions given have appropriate and obvious boundary answers	4			
	4. Fill in the discourse and questions given by the level or grade level	4			
Construct	5. Each question in the item uses a question word or command that demands an answer to the description	4	16	4	100%
	6. There are obvious instructions on how to do the problem	4			
	7. There are scoring guidelines for analyzing students' critical thinking outcomes	4			
	8. The discourse and graphics presented are clear and easy to understand	4			
Language	9. Each item uses Indonesian language that is good and right	3	11	3.67	92%
	10. Each item uses language that is easily understood and by the level or level of the class	4			
	11. Each item does not cause a double interpretation	4			
Total		43			98%
Average		3.9			

Based on the data in the above table, it can be explained that the critical thinking assessment instrument by using a graphic organizer that has been validated by the validator gets an overall worthiness of 98% with a feasibility value on the material aspects consisting of 4 statements getting a feasibility value of 100%, matters this is because every statement in the assessment of material aspects scores 4 and does not experience improvement. While the feasibility value on the constructed

aspect which consists of 4 statements gets a feasibility value of 100%, this is because every statement in the construct aspect assessment gets a score of 4 and does not experience improvement. In addition, the assessment of linguistic aspects is an aspect that has a lower feasibility score than the two aspects previously explained, namely 92%, this is because of the 3 statements on linguistic aspects, there are two statements that score 4 and one statement that scores 3 because the critical thinking assessment

instrument still uses Indonesian language that is less standard and difficult to understand so that it is necessary to improve the grammar of the critical thinking assessment instrument developed.

Critical thinking is a 2013 curriculum demand in the 21st-century, so students can think at a high level as a benchmark of intelligence that must be optimally developed. The development of intelligence is obtained by reading a lot. Reading is one thing that can not be separated from the world of education. For this reason students are required to understand and comprehend what reading is. This is all because in every aspect of community life, reading activities will be involved more and more often. Therefore, reading can increase the knowledge of students' knowledge both in education and in the community (Pahrurrazi, Kurniaman, & Alpusari, 2018). Reading skills supported by *critical thinking* are very important and must be developed by teachers with HOTS learning which is starting to be developed at this time (Kurniaman & Sismulyasih Sb, 2019). For this reason, test instruments must be developed to measure students' abilities in *critical thinking* reading with a *graphic media organizer*.

CONCLUSIONS AND RECOMMENDATIONS

Development of critical thinking reading test instruments with graphic organizer media that have been assessed by validators experts and practitioners that it is feasible to use to measure students' abilities in critical thinking reading. For

Various important skills in the 21st-century are still relevant to the four pillars of life that include *learning to know, learning to do, learning to be and learning to live together* (Zubaidah, 2016). *Critical thinking* is a 21st-century skill that provides very high skills and is able to provide solutions to problems experienced by students. Critical thinking skills help students apply what they already know to evaluate their own thinking. Critical thinking in the field of education is carried out in the learning process at school. Critical thinking skills are one of the most widely used sources in terms of teaching and assessing (Khonamri & Farzanegan, 2016). So the importance of the critical thinking instrument is made so that it can be used to assess because the simplest goals must be mastered normally before more complex goals. These categories are: 1) Remembering information, 2) Understanding, 3) Application, 4) Analysis, 5) Synthesis, and 6) Evaluation. According to this model, a higher level of educational goals is achieved when students reach the level of Synthesis and Evaluation. Therefore, they can judge, compare, infer, contrast, criticize, defend, justify, and think critically (Kennedy, 1991).

recommendations to teachers that this test should be adjusted to indicators of learning achievement so that errors in students' abilities will be detected properly.

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