

Development of Maze Case Games Based on Word Walls the Theme of My Heroes in Improving Elementary School Students' Critical Thinking Ability

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Abstract

The use of this media application requires more insight from educators. Learning focuses more on face-to-face with zoom, teaching materials are displayed only in the form of words or power points, teacher explanations are more verbal, do not use applications or interactive learning media so that students' reasoning and creativity are not optimal. well explored. Efforts that can be made to overcome monotonous learning are interactive educational games, namely word wall-based labyrinth games. The aim is to see an overview of the Improvement and Effectiveness of the Wordwall-Based Maze Chase Game Development in improving the critical thinking and reasoning skills of elementary school students. The method used is Research and Development, namely the development of learning media. The learning media development model used is analysis, design, development, implementation, and evaluation. Based on research data, maze chase is an appropriate educational game to be used as a learning medium. Based on the results of data processing, 93.3% of students stated that the educational games given by the teacher challenged them to fill them in correctly. Moreover, the game is made in the form of a maze that challenges students to think critically and reason. Meanwhile, 6.7% of students or a small portion stated that educational games were not challenging for them to fill them properly.

Keywords: Maze Chase, Critical Thinking, Elementary School

INTRODUCTION

In the era of Society 5.0, the roles of schools and teachers are important. Especially during the pandemic, learning activities are conducted online using various supporting applications such as Zoom, Google Classes, and Google Classes Meetings. The use of this means of application requires more information from the breeder. However, in reality, not all teachers have adequate information technology at present, which makes online learning seem monotonous and difficult for students to understand. Learning is more intensive and face-to-face using Zoom, teaching materials are in word or PowerPoint-only format, and teacher explanations are more verbal and do not use applications or interactive learning media, so reasoning and Improve creativity. of students are not properly surveyed. This problem is known and is based on the descriptions of several teachers at his SDN Panaragan 1 in Bogor City when the researcher made his first observations in schools about the problem in elementary school. According to the results of an interview with her Grade IV teacher from SDN Panaragan 1 Bogor City, the media often used during learning at school are WhatsApp, YouTube, Google

Classroom, and Google Forms. Therefore, teachers need to be able to create learning methods that can utilize technology such as computers as a medium for the learning process (Pebriana & Disman, 2017). The application of educational games to learning is directly through simple games only, rather than the game applications that many elementary school students love today. Lack of educational games in learning also causes students to be less active in learning because they feel that learning is monotonous. should practice critical thinking in elementary school learning. Critical thinking ability is the ability to think at a high level to solve problems in order to train and nurture human thinking ability (Ma'rifah & Mawardi, 2022).

Educational games make learning more fun for elementary school students. Because games feel like you're learning how to compete, how to compete well, and how to think critically rather than learning formally. can motivate them to learn Critical thinking involves rational, reflective thinking skills focused on deciding what to believe and what to do. (Ma'rifah & Mawardi, 2022). By increasing students' activity in learning activities, we hope that using educational games as a learning tool can create enthusiasm in students to learn the subject. (Dwiyono, 2019). Elementary school learning needs to foster the ability to think, especially the ability to think.(Pebriana & Disman, 2017)

To provide solutions to the problems arising in Class IV at SDN Panaragan 1 Bogor City, the application of Maze Chase games based on Wordwall is implemented. Wordwall can be interpreted as a web application that we use to make fun quiz-based games (Epriliyanti et al., 2021) Wordwall is a web-based digital game application that offers various game and quiz features that educators can use to deliver assessment materials (Khairunisa et al., 2022) Wordwall.net makes it easy for teachers to create interactive games and print worksheets for their students. It automates the process of designing resources so that teachers can simply insert the right content for their classes – lists of key words, definitions, questions or images (Epriliyanti et al., 2021)

The Maze Chase game is used in My Heroes Fight themed SDN Panaragan 1 Bogor City Grade 4. The Maze Chase educational game should be used in teaching to improve students' critical thinking skills and make learning more fun. Therefore, is this research formulation the effectiveness of developing a Wordwall-based maze chase game in improving critical thinking skills in elementary school students?

The purpose of this study is to develop a wordwall-based maze-catching game to improve critical thinking skills in elementary school students.

METHOD

This type of research is research and development (research and development). Development research is a research technique used to produce a particular product and to test its effectiveness of that product. This development research is used to produce cutting-edge products (Sugiyono, 2016) The product being developed is the development of teaching aids on output system material using the ADDIE model. The ADDIE development model belongs to William W. Lee & Diana L. Owens (Owens, 2004) through 5 stages, namely analysis, design, development, implementation, and evaluation. The learning pillars developed refer to the application of a scientific approach or a scientific approach, according to the 2013 Curriculum. The Game Maze Case development model used is the ADDIE model with a limited deployment stage. The complete ADDIE model development steps are as follows:

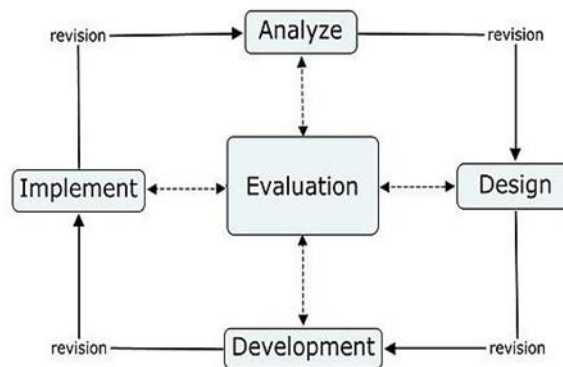


Figure 1. ADDIE Development Model Stages

1. Research Respondents

The trial was carried out after validating 3 (three) expert teams namely media experts, design experts, and computing experts. Meanwhile, field trials were conducted on 28 elementary school students taken from grade IV students at SDN Panaragan 1 Bogor City.

2. Research Procedure

The procedure for this study is in accordance with Figure 2 below:

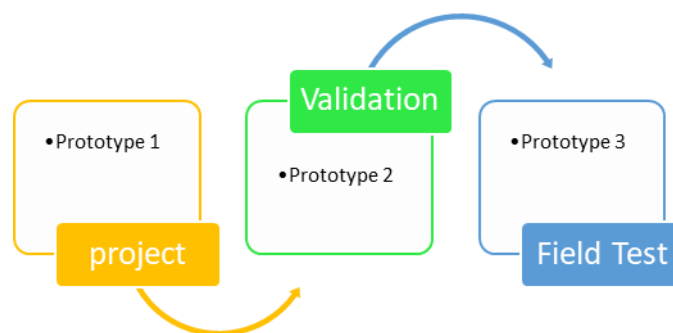


Figure 2. Product Revision Activity Steps (software)

3. Data Collection Technique

The methods used to collect data in the form of questionnaires and interviews. This questionnaire is intended to assess validation by experts and students' responses. Interview tools are used to improve the data obtained from the questionnaire tools. The expert validation test used an interview tool.

RESULTS AND DISCUSSION

Results

The study was conducted in January 2023, up to class IV class, SDN Panaragan 1, Bogor City. The study was conducted using the ADDIE method.

1. Analysis

The analysis is conducted by examining the needs for interactive learning media that are currently most needed in classroom learning. This allows students to be more motivated, to think critically, and to develop higher reasoning skills. Needs analysis based on the results of interviews with teachers that learning media are mostly made in the form of teaching materials and almost none are made in the form of games. Based on this, the researchers decided to create a maze chase game, an educational game using the Wordwall platform, titled "Heroes Struggle". Hence the maze chase game of the same name.

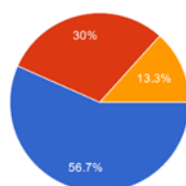


Figure 3. Use of teaching media

Based on these data, 56.7% of students stated that the teacher had used instructional media in class. Meanwhile, 30% of students stated that sometimes and 13.3% said that the teacher never used learning media in class.

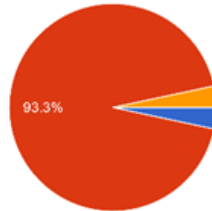


Figure 4. Difficulty answering questions

Based on the data above, 93.3% of students had difficulty answering the practice questions given by the teacher, because the questions given were HOTS-based and required students to think critically. Meanwhile, 7.7% of students stated that the questions were sometimes difficult and sometimes easy.

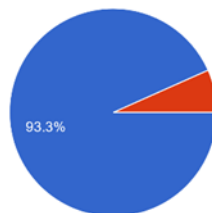


Figure 5. Ease of learning to use the media

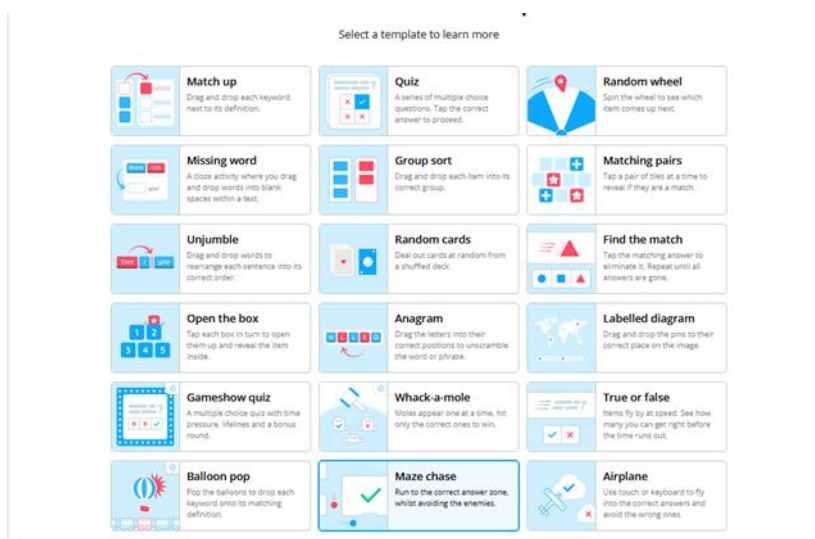
Based on the data above, 93.3% of students stated that learning would be easier if assisted by learning media.

Based on the results of interviews, questionnaires, and documentation studies, the researchers are interested in making word wall-based maze chase educational games. These games combine games with existing material content in lessons so that students become more challenged to answer questions in these games with games in the form of a maze that require ingenuity and thoroughness in avoiding obstacles to get the correct answer.

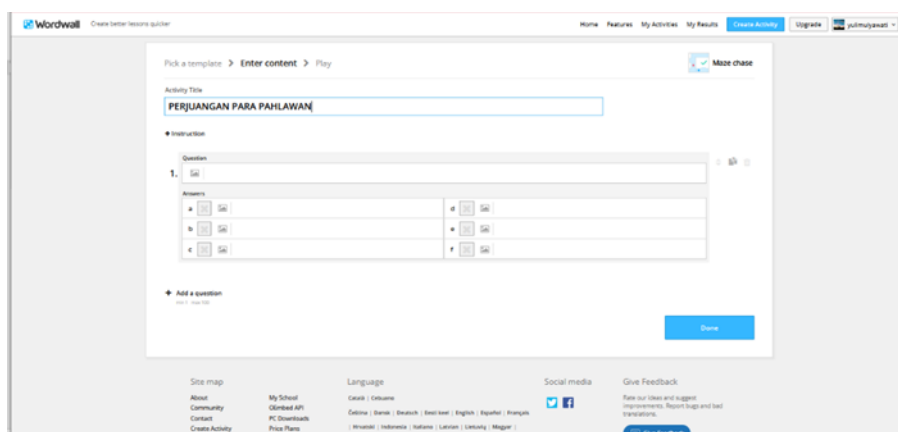
2. Design

Making a game required steps in its manufacture. The steps are as follows:

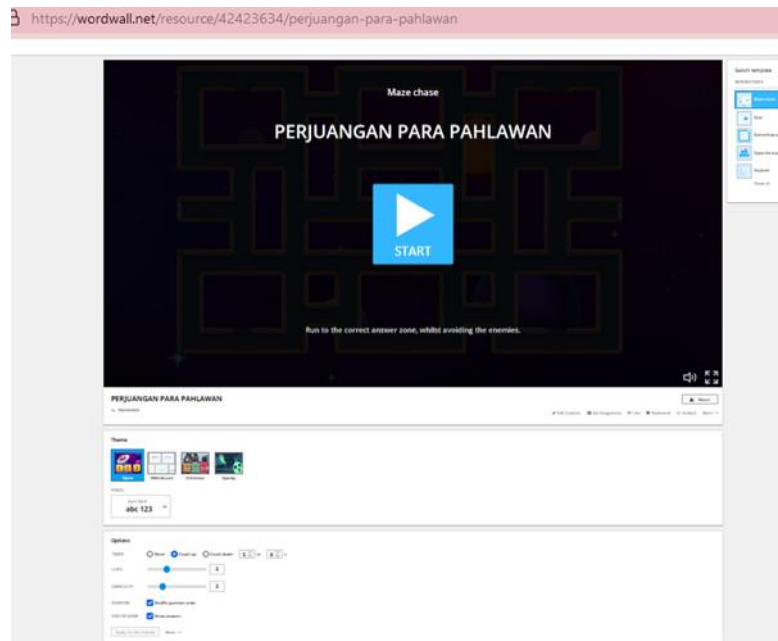
- a. Prepare online game media, Maze Chase.
- b. Go to the <https://wordwall.net> page. Several template options will appear.
- c. Select the Maze Chase game template, the title of the game material will appear



d. The author gives the title of the Games "The Struggle of the Heroes".



- 1) Enter the text that will be made about the game.
- 2) The number of questions will determine the number of levels. If there are twenty-five questions, students must play them up to level twenty-five.
- 3) When finished writing questions, select the menu done. Then the Maze Chase game will appear which already contains the questions made earlier.
- 4) Then the user plays the game first.
- 5) Users can set the timer, speed, level, scoring, and the correct answer key.



- 6) After all the settings are done, click the share button.
- 7) A choice will appear with whom to share, so choose my student and set it as a task.
- 8) Then copy the link, then share it on social media such as WhatsApp, Twitter, Facebook, Instagram, and others.
- 9) Game Maze Chase is ready to be played by students.
- 10) Students who have obtained the link can directly access it by writing the student's name, then playing it.
- 11) How to play it is easy. Students are faced with the challenge of questions whose answers are on a map.



- 12) Students must avoid the pursuit of the enemy, then run
- 13) Students must avoid the enemy's pursuit, then run toward the correct answer. If successful will go to the next level. If it doesn't work or the answer is wrong, you can't proceed to the next level.

- 14) After the game ends, students and teachers can see the results of the scoring and ranking. Learning the Theme of the Struggle of Heroes by using the Maze Chase game is quite effective in increasing students' critical thinking in learning.



3. Development

To be able to test the validity level of a game to be suitable for use in this study, expert judgment was carried out by fellow lecturers in the Learning Media course, namely Resyi A Gani, M.Pd.. and Dendy Saeful Zen, M.Pd.. based on media experts who made it feasible to use.

4. Implementation

Maze chase games are given to students in closing learning activities. Based on the results of interviews with students that with these maze games, they feel learning is more fun, and challenging and makes them want to keep playing because of their curiosity to conquer various obstacles and get lots of points so they can level up. The maze game "the struggle of heroes" challenge students to be able to think critically through challenges to be able to get the right answers and reasoning on how to strategize in order to get answers quickly and accurately without having to be hampered by obstacles in the maze chase games.

5. Evaluation

Evaluation is carried out by giving questionnaires to students regarding the use of word wall-based maze chase learning media in improving the critical thinking skills and reasoning abilities of elementary school students. Based on the results of the questionnaire, the following results were obtained:



Figure 6. Interest in hero material

Based on the data above, 100% of grade 4 students at SDN Panaragan 1 Bogor City said they liked the lesson about the struggles of heroes. This shows that a sense of nationalism exists in students.

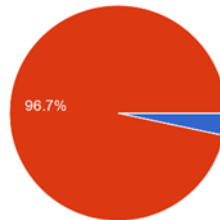


Figure 7. Student behavior when they do not understand

Based on these data that there are 96.7% of students will ask the teacher if they do not understand the material that has been taught. Meanwhile, 3.3% stated that they would remain silent if there was material they did not understand. This shows that their level of thinking is critical so that if they are not understood, they are asked directly by the teacher.

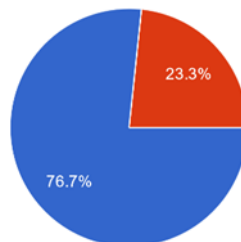


Figure 8. Discussion frequency

Based on these data it can be seen that 76.7% of students are often involved in discussions in class so that cooperation, cooperative and collaborative can be well established. Meanwhile, 23.3% indicated that students were sometimes invited to discuss in class.

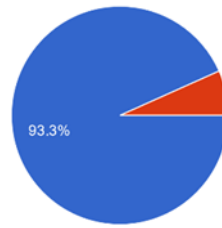


Figure 9. The educational games provided by the teacher challenged

Based on these data 93.3% of students stated that the educational games provided by the teacher challenged them to be able to fill them properly. Moreover, games are made in the form of a maze that challenges students to think critically and reason. Meanwhile, 6.7% of students, or a small portion stated that educational games were not challenging for them to be able to fill them properly.

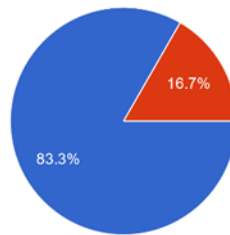


Figure 10. Ease of use maze chase educational game

Based on the data above, 83.3% of students stated that the maze chase educational games that were made were easy to use and very fun. Whereas 16.7% of students stated that the maze chase educational game was not easy to use (difficult) so that they failed several times to complete the game.

Discussion

Education 5.0 is an umbrella term used by educational theorists to describe various ways of integrating electronic technology, both physical and non-physical, into learning. This is a leap forward from Education 4.0. Education 4.0 encompasses the confluence of neuroscience, cognitive psychology, and educational technology, leveraging web-based digital and mobile devices, including applications, hardware, and software. Education 5.0 is a phenomenon that emerged as an answer to the needs of the 5.0 industrial revolution, where humans and machines adapt to find solutions, solve various problems and discover new

possibilities for innovation that can be used to improve modern humans to be better in life (Arjunaita, 2020) Responding to the challenges of the Industrial Revolution 4.0 and Society 5.0 in the field of education requires 21st Century Life Skills or better known as 4C (Creativity, Critical Thinking, Communication, and Collaboration). It is hoped that teachers will become creative individuals who are able to teach, educate, inspire and set an example (Nurani, 2021)

Society 5.0 is a society that is able to solve various challenges and social problems by utilizing various innovations that were born in the Industrial Revolution 4.0 era, such as the Internet of Things (Internet of Everything), Artificial Intelligence (Artificial Intelligence), big data (in large quantities). data) and robotics to improve the quality of human life. Society 5.0 can also be interpreted as a human-oriented and technology-driven social concept. As educators in the era of society 5.0, teachers must have skills in the digital realm and think creatively. Teachers must be more creative and dynamic in teaching in class.

The teaching skills needed today are mainly related to instructional media. The word media comes from the Latin *medius* which literally means 'middle', 'middle ground' or 'foreground'. According to Gerlach and Eli V Arsyad, media in a broad sense are humans, material or events that create conditions for students to acquire knowledge, skills or attitudes (Arsyad, 2019). More specifically, the concept of media in the teaching and learning process is often interpreted as a graphic, photographic or electronic tool for capturing, processing and reconstructing visual or verbal information.

According to Munadi (2020) educational media is anything that can convey and channel messages from sources in a planned manner to create a conducive learning environment where recipients can carry out the learning process efficiently and effectively. Learning media is defined as resources in the form of physical or non-physical which are deliberately used as mediators between teachers and students in understanding educational material to make it more effective and efficient ((Musfiqon, 2012) so that educational material is more quickly accepted by students as a whole and students' interest is stimulated to continue learning.

Based on the description above, researchers can synthesize that learning media is an integral part of the teaching and learning process to achieve predetermined educational goals, and learning media can also arouse student interest and learning outcomes.

1. Media functions in the learning process.

The term media is very popular in the field of communication. Media is a learning tool that can be used as a messenger in a learning activity. Learning media has several functions

that support the teaching and learning process. According to Kemp and Dayton (Sundayana, 2016), there are three main roles in media studies as follows.

- a. To motivate interest or action, to play a motivational role, educational means can be created in theatrical or entertainment techniques.
- b. Presentation of information, content, form of presentation is very common, serves as an introduction, synthesis or motivation of knowledge or techniques.
- c. Didactic education, for teaching purposes where information in the media must involve students mentally or mentally as well as in the form of real life activities to enable learning to occur.
- d. Based on the description above, the role of learning media is to stimulate interest or action, present information, content, general forms of presentation, and provide instructions.

2. Terms and Criteria for Learning Media

The selection of learning resources to be used must be based on clear intentions and choices. The selection of media must be in accordance with the conditions and standards of learning media, so that learning media can be used properly and support the teaching and learning process.

According to Raharjo in Mulyana (2016) the requirements and standards for learning about media are as follows.

- a. The purpose of the election itself should be clear.
- b. Familiarity with the media, such as the properties and characteristics of the media, must be acknowledged.
- c. Selection should be based on several criteria such as guidelines and benchmarks
- d. Given the large number of media in the learning process, it is felt very necessary to classify different learning media so that it is easier to understand the principles of using, maintaining, and selecting media in the learning process.

According to Sanjaya in Sundayana (2016) the types of props are as follows.

- a. Mobile audiovisual media, such as sound films, video cassettes, film reviews, television, and animation.
- b. Silent audiovisual media, such as sound films, sound pages, and sound slides.
- c. Semi-motion audio such as voice-distance writing.
- d. Transfer of visual media, such as silent films.
- e. Still visual media, such as printed pages, still images, such as printed pages, photos,
- f. Microphone.

- g. Audio media such as radio, telephone, and cassette.
- h. Print media, such as books, modules, self-study materials

Educational learning games are learning multimedia that can support the learning process in the classroom. Educational games are games that aim to stimulate students' interest in learning. Learning becomes more interesting and not boring, students need to think while playing, s students have critical thinking. The statement above is in line with the views of Kemp and Dayton and Dayton in Faiq (2012) that the benefits of games when, when used as learning media,s follows: 1) standardization of the content provided; 2) making the learning process more interesting; 3) making learning more; 4) learning time becomes efficient; 5) improve the quality of education; 6) the learning process becomes more flexible; 7) promote a positive attitude towards the learning delivered.

Games are works of art where players make decisions to get what they have through game features to complete objectives. This means that each educational game contains learning activities designed to attract students' attention so that students can learn and play according to the educational goals to be achieved. Games allow students to learn while having fun to get entertainment so students don't get bored with the learning presented.

According to Samuel Putra et al., (2020)), the benefits of games are beneficial for children, stating: 2) Learn to follow directions and rules. 3) as a logical way of solving problems; 4) motor nerves and spatial skills. 5) Establish communication between children and parents when talking. 6) As a means of entertainment. 7) For some people, games should be used as therapy.

Playing is an activity that is not only liked by children but also by adults. Most popular games are those that are distributed on computers and gadgets. However, games have a negative image for most seniors. The only way out is to study because these games can lead to addictive behavior and a tendency for children to do nothing else. Many friends in the field with many participants teach school and go to PlayStation stalls and cafes to play online. Digital offers possibilities to help students learn. This statement is based on research showing the positive impact of playing games. Fadhilaturrahmi et al., (2021) games allow children to expend excessive physical and emotional energy.

Tias in Wahyuni & Usman (2020) state that a labyrinth is a labyrinth game that requires children to think effectively and choose their path among the many available methods.

Wahyuni & Usman (2020) Labyrinth is a prayer learning activity and children must have a line that they must traverse through parts of the maze to complete it. Istiati said finding

a way or maze game is a narrow path, winding and turning and sometimes a dead end, or a gravel road, through obstacles to see through educational games.

Thinking includes mental activity in problem criticism, analysis of results, analysis, learning and acquisition. The ability to search, analyze and analyze information is very important in decision making. Critical thinkers seek information, analyze, analyse, draw conclusions and make decisions based on facts. The characteristics of people who think critically are always visible and show a relationship with the issue or issues that are being discussed in other relevant experiences (Kurniawan, N. A., Saputra, R., Daulay, A. A., 2020) belief or the right decision for what Siswono is doing (2016) The process of critical thinking includes: 1. Understanding the situation 2. Understanding opinions based on evidence, data, or expectations 3. Providing arguments beyond evidence 4. Conclusions/decisions/solutions 5. Accepting conclusions/decisions/settlements.

Critical thinking is students' critical thinking skills in oral form, presentations, analysis and problem solving (Saputri, 2020). Fogarty and McTighe's (1993) critical thinking is a way of thinking that is rational or based on reason, reflective, rational or relaactive about what must be done or what is needed (Diharjo & Utomo, 2017)

Incendiary is an act of thought that is superior to ordinary thought. Mother tongue is carried out through a certain process to reach conclusions (Mulyati, 2019) especially in the process of students' mother tongue at the everyday school level. Suherman (2013) Thinking can be seen as developing the ability to solve information problems and develop the ability to express ideas (Arianto et al., 2019).

CONCLUSION

Current learning requires the use of interactive and innovative learning media. Maze Chase Learning Media is one of the learning media that can be used as a solution in forming students' critical thinking skills. Apart from having to answer the questions, there is an element of how to trick them so they are not confronted by the enemy. With maze chase learning media it is appropriate to use it as a learning medium in elementary schools.

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