Application of Wordwall Learning Media to Improve The Creative Thinking Ability ofThird GradePrimary School Students in Learning Science

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Abstract. Creative thinking is a high-level ability to find, create, and compile ideas or ideas for solving problems. There are five aspects: fluent thinking, flexible thinking, Originality, Elaboration, and evaluation. In this literature review, we will discuss the impact of implementing wordwall learning media to improve the creative thinking abilities of grade 3 elementary school students in science learning. Wordwall learning media has been proven to increase students' interest, creative thinking, and motivation in the learning process and bring students abreast of current developments. This wordwall learning media can be an effective alternative for presenting learning material to students, especially for displaying images and interactive learning activities.

Keywords: Creative thinking, World wall, Elementary School

INTRODUCTION

Education plays an essential role in life because education is a vehicle for improving and developing human resources (HR) quality. According to Article 1 of the Law concerning the national education system, education is a conscious and planned effort to create a learning atmosphere and learning process so that students are active. Develop their potential to have spiritual power. Religion, self-control, personality, intelligence, noble character, and skills needed by oneself, society, nation, and state (RI Law No. 2 of 1989). The aim of education will be seen as successful or not depending on how the learning process occurs because, in the learning process, there will be changes in behavior, additional knowledge, and understanding of concepts—Basicangi is an educator's effort to help students carry out learning activities. In essence, good learning is when the main components in a lesson can interact with each other, between students and teachers, students and students, students, teachers and learning media, and students and the surrounding environment. This interaction is essential to achieve success in the learning process. This success will be achieved if the learning process runs effectively. A learning process within students characterizes effective learning. Therefore, through the learning process, teachers must make optimal efforts to create conditions that encourage students to play an active role as a tangible manifestation of the learning process. (Herta, 2023a).

One of the higher-order thinking abilities, creative thinking skills are cognitive skills for generating and developing new ideas, new ideas as a development of ideas that have been born previously, and divergent problem-solving skills (from various points of view)(Sonjaya & Yuliyanto, 2022).

Creative thinking skills in science learning direct students to think creatively and understand natural phenomena, fundamental problems of humans and life, and the surrounding environment. However, in reality, creative thinking abilities are less stimulated, so students are not used to thinking in various directions and with various possible solutions to the problem(Fakhirah. 2023). Choosing the right learning media is one way to improve students' various abilities, including improving creative thinking abilities (Febrianti, 2016). One of the learning media that can be used is wordwall learning media. Wordwall learning media will be

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beneficial in delivering material for students more enthusiastic about doing assignments than the writing method (Khaerunnisa 2023b). MediaWordwall Learning is an educational game-based web platform that can be used as a learning resource component or technology-based assessment instrument that interests students during learning.(Widianti & Sari, 2022). The application of Wordwall learning media in science and science subjects in class IV can increase students' interest and motivation to learn. Wordwall media allows students to learn in a more interactive and fun way, which, in turn, increases their level of engagement in learning. Some of the results and findings from this research are changes in students' attitudes when using wordwall media and an increase in students' interest and motivation in learning(Hidayah, 2023). Behind all the features offered by this wordwall learning media, there are several drawbacks, namely that creating the presentation of material using this wordwall learning media takes a relatively long time, is prone to cheating, and can only be seen because it is a visual medium.(Mujahidin et al., 2012). This research aims to determine whether the application of this wordwall learning media will improve the creative thinking abilities of third-grade elementary school students, especially in science learning without any assistance from other learning models or methods.

LITERATURE REVIEW

Wordwall Learning Media

If understood broadly, media are people, materials, or events that create conditions that enable students to acquire knowledge, skills, and attitudes. (Muryaningsih, 2021).Learning media broadly is "every person, material or event that provides opportunities for students to acquire knowledge, skills, and attitudes." Learning media is "media whose use is integrated with the objectives and content of teaching which is usually outlined in the Teaching Program Outline (GBPP) and is intended to enhance teaching and learning activities"(Handayani, 2015). Wordwall is a learning media application that can be used as an engaging online-based learning media. This application has many advantages, one of which is that it has many exciting templates that can be accessed for free by anyone. The games that have been created can be sent directly via learning platforms such as WhatsApp, Google Classroom, and so on in PDF form so that students can easily access them even when they are offline. Many games can be created on the wordwall application, such as quizzes, crossword puzzles, looking for equivalent words, random wheels, anagrams, word searches, etc. This wordwall learning media is one of the learning media that is effectively used during online learning like today(Nur et al., 2021).

This company, which originates from United Kindom, Visual Education Ltd, developed the wordwall application and recommended educators use it as a creative assessment evaluation method because there are many exciting things about this wordwall, namely, Games can be played offline with printable facilities available, and support sharing on other platforms(Mujahidin et al., 2012).

Disadvantages and Advantages of Wordwall Learning Media

The application of learning media in the learning process undoubtedly increases the desired learning outcomes. Of course, each learning media will adjust its application according to the situation and conditions, the characteristics of students, and the learning that will be presented to students. Thus, it is not always the case that the media or even the models and methods used have no drawbacks, but of course, there are plus points from the media, methods, or learning models used.

Wordwall learning media itself also has its advantages and disadvantages, which can be used as consideration in selecting learning media appropriate to the material to be presented, the characteristics of the students, and the situation and conditions. The following are some of the advantages and disadvantages of wordwall learning media. Making learning media in the form of a wordwall does not need to require high costs. As GVB said, using this learning media is very easy and cheap. We can create creative and interactive learning media with just a quota and a good network. (Herta. 2023). The Wordwall application is also straightforward to access and use. The way to access the Wordwall application is to visit the page https://wordwall.net/. Then log in or sign up using email or Google account. After that, just fill in the data that needs to be completed(Ratnasari. 2022). Wordwall learning media is also very flexible and can be used by

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various school levels. Playing is enjoyable because it is not monotonous, the media is creative, can be an evaluation tool, and quizzes can be printed and distributed to students. Behind the advantages, there are disadvantages, as well as learning media, which adapts to the situation and conditions, characteristics of students, and their learning. The disadvantages of wordwall learning media, among others, are that wordwall media can only be seen because it is a visual media, and wordwall media requires more time to prepare it. (Nurinda. 2023).

The advantages of the wordwall game are that it has various features and is very flexible, can attract students' attention because it is a game, can be used in all subjects, makes students creative, builds character in collaboration with friends, and is simple to implement. Meanwhile, the disadvantage of the wordwall game is that making a game on a wordwall takes quite a long time. Because of the students' enthusiasm, the teacher may be overwhelmed in ordering the students, and if you use the wordwall application, it requires media that is difficult to carry everywhere.(Nisa & Susanto, 2022).

One of the advantages of using Wordwall media in learning is that teachers can use other quizzes to train students, or teachers can create their quizzes, and students can look for other quizzes to hone their skills. Apart from the advantages, of course, it cannot be denied that there are disadvantages to using Wordwall media as a learning medium, namely the unstable internet network. Based on students' statements, the school's unstable internet network was an obstacle when working on questions in Wordwall media. This is in line with research results, which state the shortcomings of Wordwall media. When the internet network is unstable or experiences interference, the use of Wordwall will be disrupted(Suarmini & Nurjaya, nd2023).

Wordwall learning media can make learning more meaningful and make it easier for students to understand the material for both elementary and middle-level students. Assignment procedures are available on the Wordwall application, which students can access via cell phone. The Wordwall application is creative and exciting. The disadvantages of this wordwall application are that in its use, it is prone to cheating, the size is not available and cannot be changed, designing media or evaluation tools takes a long time, and internet network constraints because its use requires an optimal internet network. In line with this, it is stated that wordwalls can make it easier for students to understand lesson material and are easy to use to find out how students' learning achievements are.(Sahanata et al., 2022). From the description above, it can be concluded that there are several advantages and disadvantages of wordwall learning media, namely as follows:

Advantages of Wordwall Learning Media:
a) Low Manufacturing Costs: Creating Wordwall learning media does not require high costs.
b) Ease of Access: The Wordwall application is easy to access via https://wordwall.net/by using email or a Google account.
c) Flexibility of Use: Wordwall can be used by various school levels, is creative, and can be an evaluation tool.
d) Advantages: Diverse features, flexible, attracts students' attention, can be used in all subjects, builds student creativity and collaboration.
e) Increase the Meaning of Learning: Wordwall can make learning more meaningful and easier to understand the material.

Disadvantages of Wordwall Learning Media:
a) Visual Only: Wordwall media is visual only and requires more preparation time.
b) Dependent on the Internet: Lack of an unstable internet network may interfere with using Wordwall.
c) Long Creation Time: Making games in Wordwall takes quite a long time.
d) Long game creation time, potential difficulties in controlling enthusiastic students, and limited mobility when using the application.
e) Limitations of Use: Vulnerable to fraud, font size cannot be changed, and optimal internet network constraints.

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Wordwall Implementation Steps

The following are the steps in creating learning media using wordwall learning media. The first step to take is to visit the page https://wordwall.net/. In the second step, select the sign-up option, then enter your name, email address, password, and location. You can also sign up using a registered Google account. In the third step, if the account has been created, please select the create activity option. Later, various templates will appear that can be adapted to what is desired when creating learning media. For this template, the author chose the Maze Chase template. In the fourth step, if you have chosen which template to use, please click on the template, then fill in the title, game description, and question. In the fifth step, if all the steps have been done, click done(Ratnasari. 2022). Alternatively, in more detail as follows:

1. Step 1: Create a Wordwall Account
    a) Go to the official Wordwall site at https://wordwall.net/ or download the Wordwall app on your device.
    b) Click the "Sign up" or "Register" button to create a new account.
    c) Fill in the information required to create an account, or log in using a Google or Microsoft account if it is easier.

Figure 1. Create a Word wall account

2. Step 2: Create an Activity
    a) Once logged in, click the "Create" button to create a new activity.
    b) Select the type of activity you want to create from the list of available options, such as "Crosswords," "Word Puzzles," "Word Cards," or other types according to learning needs.
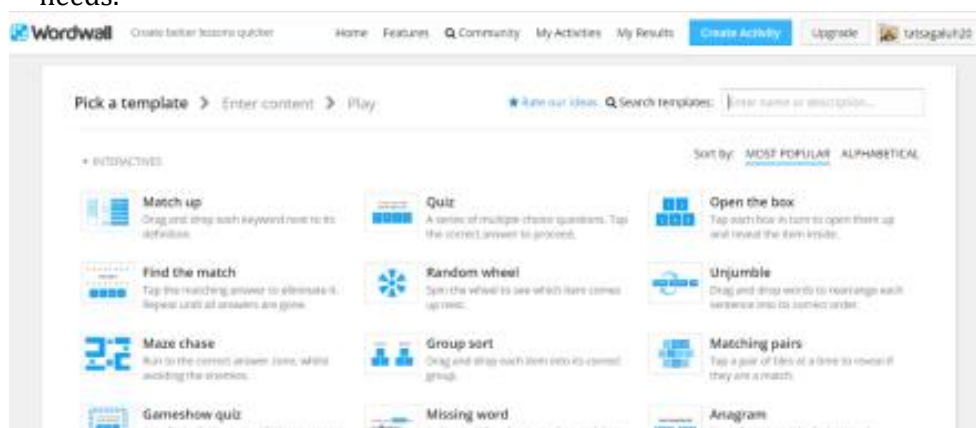

Figure 2. Activity Menu Options

3. Step 3: Filling in Activity Content
    a) Provide a title for the activity so that it is easy for students to recognize.
    b) Enter relevant questions or words for the selected activity.
    c) You can add images or videos to make the activity more exciting and informative.
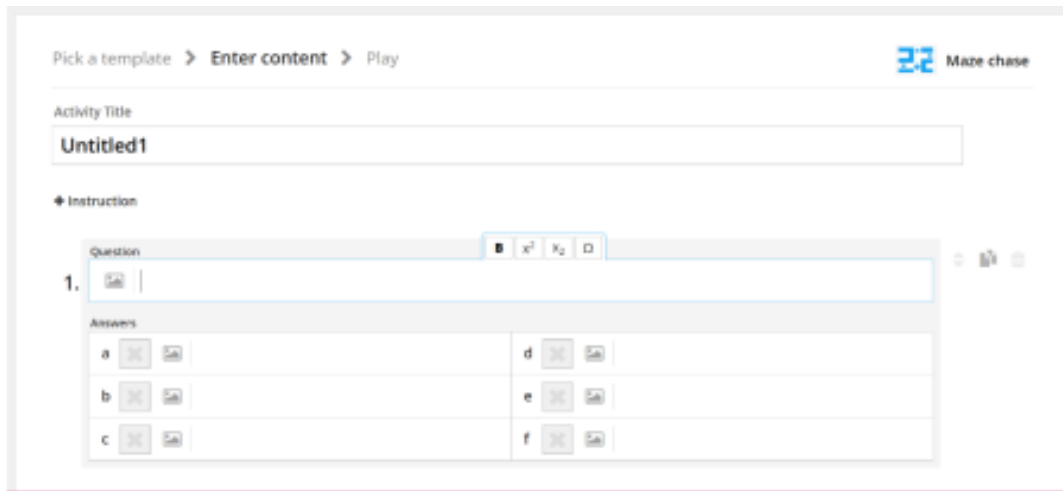   d) You can adjust other options and settings, such as time, score, and answer key.

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Figure 3. Filling Activity Content

4. Step 4: Saving and Sharing Activity
   a) After completing the activity content, click the "Save" button to save it.
   b) Finally, it will provide several options for sharing the activity, such as a link to share directly, a unique code for students to enter, or embedding the activity to a website or other learning platform(Herta. 2023).

Figure 4. Saving and Sharing Activities

Apart from the tutorial above, we can also see other tutorials on several YouTube channels that discuss wordwall learning media to increase our understanding, namely how to utilize, use, and create learning media using wordwall. Many YouTube channels discuss fig tutorials using wordwall learning media, one of which is Aan Yuliyanto's channel, which contains fig tutorials using wordwall learning media optimally https://youtu.be/OzdNuIU5xcY?si=1HwWNn0LRdvQ-8kO (Yuliyanto, 2021).

Creative Thinking Ability

Creative thinking is a thought process to find something that can change or improve any condition so that it becomes better. Creative thinking means developing your talents, learning to use your abilities optimally, exploring new ideas, new places, and new activities, and developing sensitivity to environmental problems, other people's problems, and humanitarian problems. Creative thinking is the ability to create something new, something different from others, create solutions to solve problems, and make innovative and original plans that are implemented carefully and consider problems that may arise and how to overcome them Haerudin (Marliani, 2015). Creative thinking is the ability to analyze something based on data or information to produce new ideas in understanding something(Sapulete et al., 2023). Pehkonen and Helsinki stated that creative thinking is a combination of logical and divergent thinking based on intuition but is still conscious. Silver also explained that the components of creative thinking include Fluency, Flexibility, and novelty. (Marwiyah, 2015). Creative people are those who have a high sense of curiosity, are rich in ideas, are imaginative, self-confident, non-conformist, persistent in achieving their desires, work hard, are optimistic, sensitive to problems, think positively, have a sense of self-ability, future-oriented, likes complex and challenging problems., Creative thinking skills are cognitive skills to generate and develop new ideas, new ideas as the development of

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ideas that have been born, and skills to solve problems divergently (from various points of view)(Sonjaya & Yuliyanto, 2022).

Indicators of creative thinking ability are 1). Fluency is having ideas in various categories; Flexibility is the ability to provide appropriate and correct ideas. 2). Flexibility, that is, having a variety of ideas or the ability to solve problems in more than one way with various other possibilities. 3). Originality, namely having new ideas or concepts to solve problems or the ability to answer ideas that are different and do not yet exist. 4). Elaboration is the ability to detail answers and precise details (Rahmat & Imamuddin, 2023). Munandar stated that the characteristics of creative thinking abilities related to cognition can be seen in fluent thinking, flexible thinking, original thinking, Elaboration, and judgment skills. (Moma, 2015).

Based on the description above, it can be concluded that creative thinking ability is an ability that involves cognitive processes to produce new ideas, creative solutions, and different and innovative problem-solving. Creative thinking skills also include viewing problems from different perspectives, developing new ideas, and exploring alternative options to achieve better results. Indicators of creative thinking ability include Fluency, Flexibility, Originality, and Elaboration. Creative people have high curiosity and rich ideas, are imaginative, self-confident, non-conformist, persistent in achieving their desires, work hard, are optimistic, sensitive to problems, think positively, have a sense of their abilities, are future-oriented, complex, and challenging problems.

Science Learning

There are many essences of science learning theories, according to experts, including, according to Bundu, science or natural science is the science that studies nature or studies events and phenomena that occur in nature. (Dewi, 2021). According to Rustaman, science or science is a process that produces knowledge. This process depends on careful observation of the phenomena and theories found to interpret the results of these observations(Amalia. 2021). Trianto explained that science learning is a collection of theories based on natural phenomena(Samitra. 2022). From these opinions, it can be concluded that science learning (natural science) is a field of science that studies symptoms, events, or phenomena that occur.

The concept of science learning has unique characteristics that study factual natural phenomena. Therefore, the science learning process will be exciting if the teacher can package the material that will be taught by directly connecting it with natural phenomena. So, science learning requires a learning process outside the classroom (outdoor learning). The science learning process carried out outside the classroom has a significant meaning for student development because such a learning process can provide direct experience to students, and direct experience allows science subject matter to become more concrete and tangible, which means the learning process will be more meaningful. (Santika 2017). In general, science is understood as a science that is born and develops through steps, observing the formulation of problems, formulating hypotheses, testing hypotheses through experiments, drawing conclusions, and discovering concepts on theories to instill science values in science learning. (Fatimah. 2013). According to Sulistyorini (in Julianto et al., 2007: 9), essentially, science is viewed in terms of products, processes, and attitude development, meaning that learning science has a process dimension, a result (product) dimension and a scientific attitude development dimension. These three dimensions are interrelated, and the science learning process should contain these three dimensions(Damayanti, 2014.).

From the description above, according to experts, the learning theory of Natural Sciences (IPA) includes understanding nature, observing natural phenomena, and using theory to interpret the results of observations. Science learning has unique characteristics that focus on direct experiences outside the classroom, enriching students' understanding.

Science learning is viewed through three main dimensions: process, results (product), and development of a scientific attitude. The science learning process includes observation, problem formulation, hypothesis, experimentation, concluding, and concept discovery. It emphasizes a holistic approach to student development. Overall, science learning focuses on conceptual knowledge and involves aspects of scientific attitudes and overall learning outcomes.

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DISCUSSION

Application of Wordwall Learning Media to Improve the Creative Thinking Abilities of Third-Grade Elementary School Students in Science Learning

The use of wordwall as a learning medium can make a significant contribution to improving students' creative thinking abilities. The various features and templates provided by wordwall provide space for educators to design learning media as creatively as possible by paying attention to indicators of creative thinking ability. Wordwall provides Flexibility in creating creative learning content. Indicators of creative thinking abilities in the form of authenticity (original) and Flexibility (flexible) can be stimulated by the ability of educators to develop innovative and varied questions to create a learning atmosphere that stimulates students to think creatively. According to the results of the data obtained, the development of LKPD based on Creative Thinking Skills using the Chase-Wordwall Maze in Natural Science Learning for Alternative Energy Sources is very suitable for use by class students.(Widianti & Sari, 2022).

The wordwall game feature can encourage student activity. The fluency aspect of novelty in creative thinking is reflected when students participate in quizzes or interactive games that produce new ideas and explore learning concepts in more depth. Wordwall learning media can also be embedded with video images and other multimedia elements to support indicators of Elaboration in creative thinking. Students can detail their answers in more depth by using various media as a stimulus for students to have a more comprehensive, more profound, and broader understanding in this way. They will find information from their own experience. Wordwall allows educators to design group activities to encourage collaboration between students to think together. This can enrich students' knowledge in developing joint solutions linked to indicators of active thinking abilities that prioritize diversity of perspectives. With group discussions, there will be much diversity of thought from each group, producing new ideas and ideas that were never expected before (original).

Creative learning theory emphasizes the importance of using methods that stimulate creative thinking. The application of Worldwall learning media can be considered as an implementation. This theory proves that technology in education can support the development of creative thinking abilities. In other words, wordwall is only a medium for conveying to students to present learning material according to their respective characteristics. Apart from that, learning media can also be combined with several models and methods to maximize learning outcomes by presenting materials and models or learning methods to execute the material, making the learning process more colorful, active, and exciting. Theoretically, using world wall learning media enriches understanding of how learning media can support the development of student's creative thinking abilities. At the same time, from a practical perspective, wordwall becomes a concrete tool for educators to design learning experiences that focus on students' creative thinking abilities. This can be seen from students' activeness in learning students' participation in answering or generating their ideas.
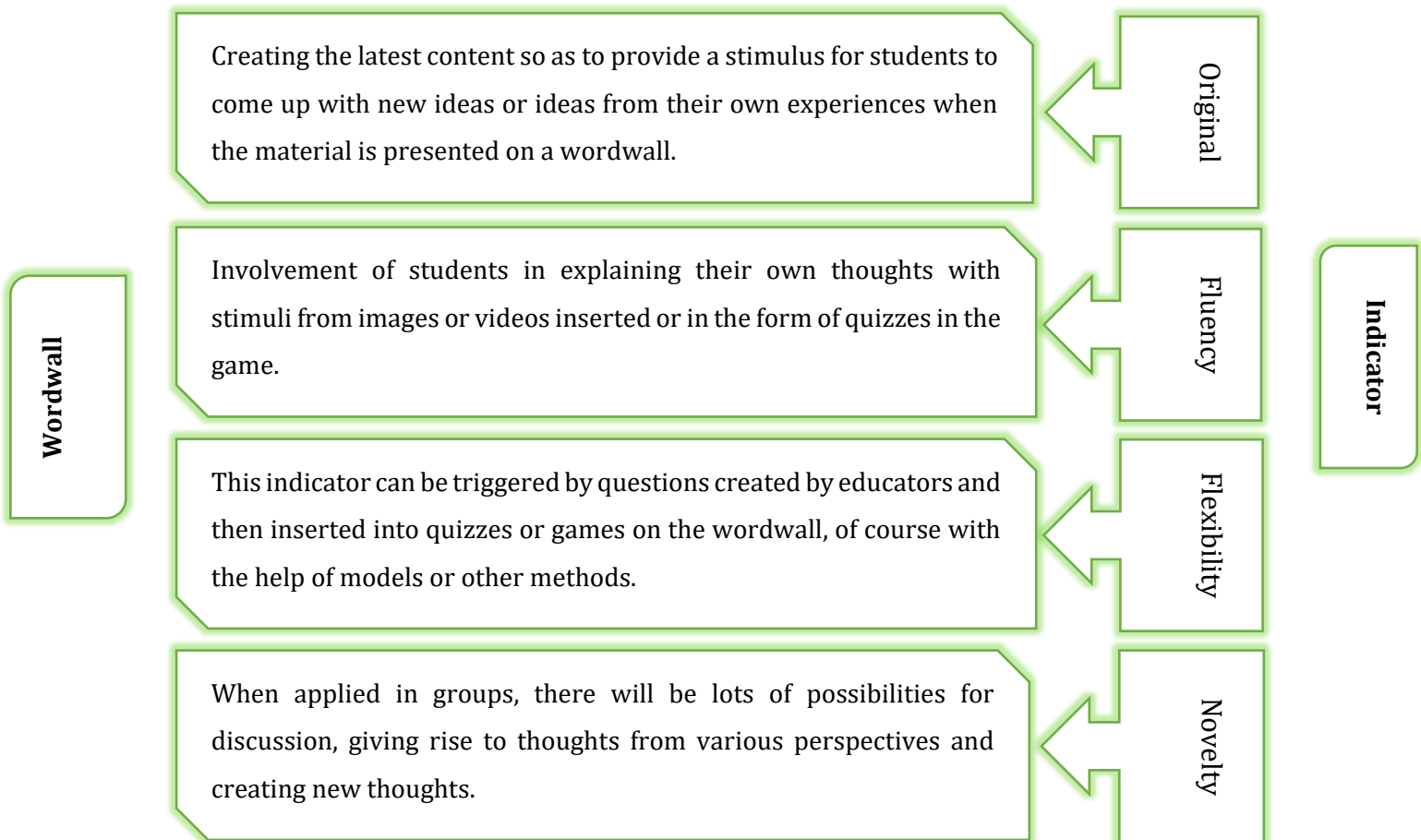
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Figure 5. Depiction of Wordwall Media to Improve Creative Thinking Ability

CONCLUSION

Using Wordwall as a learning medium can make a significant contribution to improving students' creative thinking abilities. Wordwall provides Flexibility in creating creative learning content and can stimulate students to think creatively. The Wordwall game feature can encourage students' activeness in creative thinking. Learning media can also include video images and multimedia elements to support elaboration indicators in students' creative thinking. Wordwall allows educators to design group activities to encourage collaboration between students to think together, thereby creating various perspectives. In creative learning theory, the use of Wordwall can be considered as an implementation of this theory and proves that technology in education can support the development of students' creative thinking abilities. In other words, Wordwall is only a delivery medium for students to present learning material according to their respective characteristics. Apart from that, learning media can be combined with several models and methods to maximize learning outcomes. Thus, there will be many opportunities for students to express their ideas and various stimuli that educators can create in the learning process.

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