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The Implementation of the RADEC Learning Model through the WhatsApp Application to Increase the Creativity of Elementary School Students

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Abstract. The application of innovative learning models is one of the things that plays an important role in the progress and improvement of the quality of education in schools. This research was conducted by applying the read-answer-discuss-explain-create (RADEC) learning model in locomotor material. The purpose of this study was to determine students' creativity in locomotor materials through the application of the RADEC learning model in grade 5 elementary schools. This application research becomes more challenging with the use of various online (online) applications as media in the implementation of face-to-face substitute learning in classrooms during the COVID-19 pandemic. The subjects in this study were 24 5th grade students of Karyamukti State Elementary School, Cibatu District, Garut Regency, consisting of 11 females and 13 males. This study uses a descriptive method with a qualitative approach. Data collection is done by using question instruments and collecting student works in learning. The results of this study indicate that the RADEC learning model helps students increase creativity in learning and produce creative and innovative works after participating in learning.

Keywords: RADEC, WhatsApp, Natural Science, Student Creativity, Elementary School.

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INTRODUCTION ~ The achievement of learning objectives in schools requires a contextual strategy chosen by the teacher in the implementation of learning (Anitah, 2007). The emerging innovative learning models have obstacles to implement. One of them is due to the development base that is not following the conditions in Indonesia. In the teaching and learning process, it is important for the teacher as a teacher not to dominate the activities, but to create an atmosphere of student learning and provide motivation and guidance so that students develop their respective potential and creativity. (Fathurrohman, 2015).

The development of learning methods and models that are increasingly developing and varied provide alternatives and flexibility for educators to innovate and be adaptive to the situation and developments of the times. One of the learning models that can be applied is a learning model by following structured learning steps, namely read-answer-discuss-explain-create (RADEC). The RADEC learning model is a learning innovation that can encourage the development of 21st-century skills and mastery of the learning concepts being studied (Sopandi, 2017).

The RADEC model has four main bases of development, namely the goal of national education to form human characters, accessible learning resources, belief in social constructivism that students are capable of completing tasks independently, and efforts to develop reading skills (Pratiwi & Sopandi, 2018). RADEC is easy to implement with the

support of a curriculum that prioritizes efforts to develop the potential of students and an abundance of current information sources with various platforms. The application of RADEC has several challenges, such as the habit of teachers using the lecture method by explaining all lesson materials, the habits of students who are presented with various materials by the teacher, and the perspective of the meaning of education which is not yet broad, limited to high final scores (Lestari & Suhandi, 2020). Dengan adanya inovasi pembelajaran yang berorientasi pada pembelajaran mandiri dan kolaborasi, diharapkan dapat menggeser paradigma pembelajaran yang selama ini berpusat pada guru sebagai sumber informasi menjadi berorientasi pada kreativitas siswa (Sopandi & Handayani. 2019).

Natural Sciences are subjects taught in elementary schools that are closely related to phenomena that occur in nature and their effects in everyday life. The phenomena that occur in nature then become a source of inspiration for scientists to study their properties and produce technologies that are useful in life. Science learning includes learning related to ways of thinking and solving problems (Sujana, 2014).

One of the science teaching materials that are very closely related to everyday life is the movement tool material. Movement tools are one of the important components in living things to be able to carry out various activities. Further, in everyday life. This material is one of the materials that require experimental learning or trials and observations so that students can understand comprehensively how locomotion tools can work. What are the parts of locomotion, passive locomotion, and active locomotion. Therefore, in addition to requiring scientific and critical skills and attitudes, students are also expected to be able to develop their creativity by conducting experiments and observations that make them understand the importance of maintaining health so that the locomotor can function properly.

Creativity is a very important asset for students to have, so it is hoped that each individual can overcome problems in every learning activity (Sopandi. 2017). Creative thinking can also be referred to as divergent thinking, which is a mental thinking process that is oriented to the right answer. Creative thinking involves a feeling of missing an element that disturbs him so that it triggers him to create ideas or hypotheses, communicate, and modify the hypotheses that have been made (Mayer, 1983).

In the divergent thinking process, there are four indicators of creativity that can be measured, namely fluency (the ability to generate many ideas), flexibility (the ability to produce variations in ideas), originality (the ability to generate new ideas that have never existed before) and elaboration (the ability to develop ideas). so it becomes richer and more detailed) (Munendar, 1992). Dimensionally. Creative thinking can be divided into three, namely cognitive dimensions (fluency, flexibility, originality, and detail), affective dimensions (attitudes), and psychomotor dimensions (skills). According to Williams, creative thinking in the affective dimension includes the courage to take risks, have challenges, curiosity, and imagination. While the cognitive dimension includes thinking

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fluently (fluency), flexible thinking (flexibility), original thinking (originality), detailed thinking (elaboration), and evaluative thinking (evaluation) (Munendar. 1992).

The learning and teaching process is currently experiencing greater challenges than before with the COVID-19 pandemic that has hit the world since it was first reported to be identified in Wuhan, China (Khan, Kazmi, & Bashir, 2020). This global pandemic has changed the pattern of life in almost every aspect of life (Anderson, 2020). Various policies related to preventing the transmission of this disease have been issued by the government, such as the implementation of health protocols that are seeking to become new habits for the community. A very significant change in habits also has an impact on the world of education (Arora & Srinivasan, 2020), so that the teaching and learning process which is usually carried out face-to-face in schools must move to the distance learning method by utilizing advances in information technology such as electronic devices such as gadgets and computers either in the form of a personal computer or in the form of a laptop connected to the internet network (Astini, 2020). These electronic devices must also be equipped with learning support applications such as virtual meeting applications such as Zoom Cloud Meetings (hereinafter referred to as Zoom), Google Meet, or Microsoft Teams as well as other supporting applications such as the WhatsApp application to communicate via short messages, as well as e-mail and e-mail accounts. Google Classroom for easy data sharing between teachers and students (Dewi, 2020). In addition to these technical factors, educators must be able to adapt learning methods that are more adaptive and compatible with remote meeting situations so that educational goals can still be achieved. In practice, distance learning also has challenges that must be overcome together so that it requires good cooperation between the school and parents at home. Constraints that may occur in the implementation of online distance learning are limited mastery of information technology, inadequate facilities and infrastructure, internet access, and budget constraints (Aji, 2020). In implementing distance learning, teachers must be prepared for various learning conditions and student conditions, including the development of life in the community despite being constrained by the pandemic (Abdullah, 2016). One of the learning models that can be used in the implementation of distance learning is structured learning, namely read-answer-discuss-explain-create (RADEC). This study aims to find the relevance of the application of the RADEC learning model in fostering student creativity in the material for movement tools in the distance learning method.

METHOD

This study uses a descriptive method with a qualitative approach. The descriptive method aims to describe and analyze research results specifically and does not aim to conclude (Sukardi, 2019). This method is expected to provide an overview of the application of the RADEC learning model in increasing students' creativity in the Motion Tool material with the online distance learning method using the Zoom Cloud Meetings application.

The subjects in this study were 24 5th grade students of SD Negeri 2 Karyamukti, Cibatu District, Garut Regency, West Java, in the 2021/2022 academic year, which consisted of 11 girls and 12 boys. The research instrument used is a pre-learning sheet that is used by students in carrying out the stages of learning to read and answer independently as well as a final test. In this case, the class is divided into five groups, each of which expresses the results of independent learning by reading, answering questions from the worksheet (answer), and discussing with the group (discuss) then explaining (explain) the Motion Tool material with a portfolio. works that have been created. Student creativity is measured from the structured learning series with various indicators related to the creativity component, namely fluency, flexibility, originality, elaboration, and evaluation.

RESULT

Before implementing Distance Learning in the Network, the teacher first ensures that all students have a device, the device may not belong to the students themselves. But the devices used to belong to parents, brothers, uncles, or aunts so that students can still do learning. Teachers and students use the WhatsApp application to communicate, prepare for learning and carry out learning. The virtual meeting application used is the WhatsApp application because this application is considered to have various advantages such as ease of installation, is available for free, and is compatible with various gadgets and computers. The use of the WhatsApp application can minimize internet connection disruptions because written messages, voice messages, images, and videos can still be received when connected to the internet network. The existence of schools in areas where the internet network is less stable is greatly helped by this WhatsApp application. The implementation of Learning Movement Materials through online PJJ with the read-answer-discuss-explain-create (RADEC) learning model is carried out in the following order:

Tabel 4.1 Learning Activities

Activity	Activities Descriptive	Time Allocation
Pre Learning	Students are given 7 pre-learning questions to then find out the answers through various learning resources that are accessible at home as follows: Students are put into 5 different WhatsApp groups consisting of 7-8 members to facilitate discussion sessions to answer 7 learning questions. (Fase *Read* & *Answer*)	3 days before the study
Introduction	1. The teacher opens with greetings and continues by reading a prayer (Orientation) 2. The teacher links the material with the experience of students (Apperception) 3. The teacher gives an overview of the benefits of learning the lessons to be learned in everyday life (Motivation)	15 minutes via WA Group

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(RADEC Model Syntax)	
Core Activities	1. All students who have been divided into several groups discuss via WhatsApp Voice Note, Video Call, and massage with their respective groups to discuss 7 pre-learning challenge questions. (*Discuss phase*) 2. Students formulate the results of their discussions through media of interest such as PowerPoint, text, audio, or video. (*Discuss phase*) 3. Students explain what they have understood in group discussions to class through presentations (Explain Phase) via video sent to the Class WhatsApp Group 4. Students respond to each other and give questions or complete friends' answers (Explain Phase) 5. Students work on LKPD/worksheets to strengthen understanding. Students are given the challenge to create a work with the theme of Motion Tools. Students are given video initiations related to Motion Tools as inspiration for their work (Create Phase)
Penutup	1. The teacher provides a sufficient complement of explanations for points that have not been understood by students 2. Teachers guide students to reflect on student achievement/formative assessments and teacher reflections to determine the achievement of the learning process 3. One of the students leads the closing session of the lesson by praying together

Tabel 4.2 Student Creativity Indicator

RADEC Model Syntax	Learning Activities	Sub-Indicator of Creativity	Score	Category
Read	Students learn movement tools independently through various references, both those recommended by the teacher and other references through the pre-learning question guide	*Fluency*	94%	Very Good
Answer	Students answer pre-learning questions as an illustration of discussion material at the next meeting	*evaluation*	92%	Very Good
Discuss	Students discuss each other's answers with other students through the WhatsApp application	*Elaboration*	92%	Very Good
Explain	The teacher provides opportunities for students to convey their answers to other students by expressing their opinions	*Flexibility*	90%	Very Good

Create	• Each group discusses and plans a work that presents the material for movement tools	*Originality*	92%	Very Good
	• Each group writes down each member's ideas and schedules group work to create works related to the movement tools material		90%	Good
	• Each group member works together to make works according to the group's agreement and interests		92%	Good

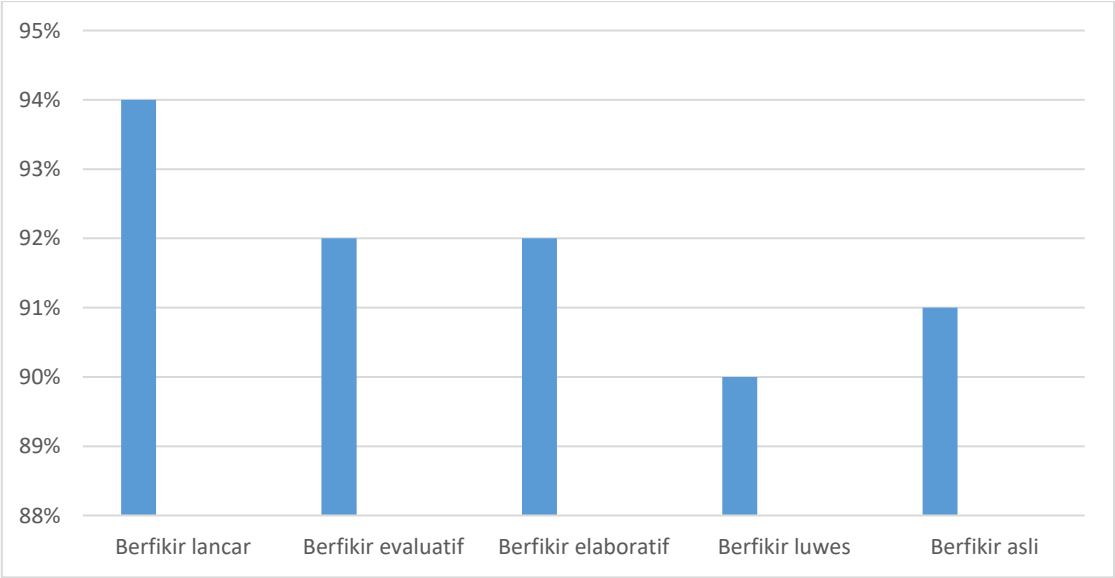

Figure 4.1. Student Creativity

DISCUSSION

Students look for material about locomotion at the read stage guided by pre-learning questions then answer questions. After getting the results of student answers from the pre-learning assessment, the teacher then evaluates all student answers by opening a discussion. Through this discussion, students were asked to express their opinion about the answers that have been formulated by each group. The teacher acts as a facilitator for each group's discussion forum. Students are then asked to correct their answers by correcting incorrect or incomplete answers from the results of the discussion. As a final implementation, students are asked to create (create) a presentation portfolio related to the movement tools material in groups according to their interests and creativity. In this study, students were divided into five groups with different works to obtain variations. Assessment of group work based on assessment indicators.

Based on the table, it can be seen that the learning aspect includes reading activities (read) getting an assessment percentage of 94% in the very good category while answering activities getting an

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assessment percentage of 92% in the very good category. The activities of discussing (discussing), explaining (explaining), and creating (create) each received a rating percentage of 92%, 90%, and 91% which fall into the very good category. From the results of the assessment, it can be seen that students can show indicators of creativity in the form of fluency, evaluative thinking, elaborative thinking, flexible thinking, and originality very well. Students' creativity in learning movement tools can also be seen with the work displayed through presentations in various forms and media. Of the 5 groups, three groups presented their work in the form of PowerPoint presentation slides, two groups in the form of video presentations, and each group each made a creation in the form of experimental results on movement tools.

CONCLUSIONS

Based on the results of the study, the following conclusions can be drawn:

1. Student creativity in learning the material for locomotion is considered very good from the aspects of fluency, flexibility, originality, elaboration, and evaluation. because students undergo structured learning with activities of reading, answering, discussing, explaining, and creating works.

2. Student creativity can be further explored when students are allowed to be able to express their learning outcomes through their work with various media. Students are also trained to be able to collaborate with their groups.

3. The application of the RADEC learning model is very relevant to be applied in distance learning situations in the network through the WhatsApp application because this learning model strongly supports learning and being creative independently and collaborating through digital access.

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