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Development of Science Assessment to Measure Creative Thinking Ability of Seventh-grade Junior High School Students

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Abstract

This study has purposes which to determine the development of creative thinking assessments on the topic of the interaction between living things and their environment and to describe the feasibility and effectiveness of developing creative thinking assessments on the topic of the interaction between living things and their environment. The type of research used is Research and Development with a quantitative approach. The results showed that the development of creative thinking assessment on the topic of the interaction living things and their environment using the Borg and Gall development model which consists of eight steps, and the feasibility of this development product was tested by 3 lecturers, namely: 1 lecturer as an assessment expert, 1 lecturer as language, and 1 material expert. Based on the results of the validation assessment, feasibility of assessment was 81.5%, language validation was 88.8%, and content validation was 94.4%. Furthermore, it can be concluded that the development of creative thinking assessment on the topic of the interaction of living things and their environment is included in the criteria that are very suitable to be used without any revision.

Keywords: Assessment, Creative Thinking, Development

INTRODUCTION

Learning process is a type of a coordinated interaction to achieve goals through various meetings conducted by educators. The nature of training in learning is carried out by relying on the preparation, implementation, and assessment that has been carried out by educators (Sugrah, N., 2019). The educator's task is not just teaching (Teacher-Centered), but more about engaging students to be more active (Student-Centered). Learning process is also a way to see, pay attention, and understand things around students (Asiyah, et al, 2020).

Science learning is defined as a means for students to be able to learn concepts related to the natural phenomenon, analyze related problems, and apply mastery of concepts in everyday life. In addition, science learning also combines and relates the concepts of chemistry, physics, and biology into a holistic whole and has the potential to improve students' experience and ability to understand concepts related to the natural environment. An effective science learning can also be developed by focusing on the peculiarities of a region or region, for example relating to culture, and local customs (DK, Sabtiawan, WB, & Sudarmin, S., 2017). This is caused by the learning process that applies local wisdom and local traditions can help students to appreciate and respect their region and

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nation (Damayanti, 2012).

Furthermore, natural science discusses concepts related to natural phenomena through a series of scientific processes that are also supported by a scientific attitude, and the result is a scientific product composed of three important components including theory, principles, and concept (Sugrah, N., 2019). Based on the results of the analysis of relevant research, the problem that generally occurs in the science learning process is the low understanding of students' concepts in science material, which is caused by the lack of active student involvement in the learning process and low student motivation, so that it has an impact on student learning outcomes that are not maximum.

The teacher has a very important role in helping students to improve their creative thinking skills, one of which is the use of learning media, the selection of learning methods, and the provision of structured tests and assignments which should contain content that can train students to think creatively. Puspitasari, EDT, Surjono, HD, & Minghat, AD, 2018). Based on this overview, it can be concluded that an effective learning process should be able to train and improve students' creative thinking skills and can assist students in analyzing problems, as well as communicating ideas and opinions scientifically.

Experts also state that the learning process that focuses on improving creative thinking skills can have an impact on the development of the quality of education, this is because the learning process becomes more meaningful which makes learning activities more fun and effective. In addition, creative thinking skills in students will not be able to increase if it is not supported by the teaching ability, creativity, and teaching style of the teacher (Mulyadi, 2016).

Creative thinking ability is defined as an ability or skill which allows students to be able to develop and create new ideas or works that are different from the ideas of others. Creative thinking ability is also a way of thinking that focuses on new knowledge, new insights, or different methods of understanding and solving a problem.

The existence of good creative thinking skills can help students understand science learning materials easily and can guide students in finding appropriate problem solutions. It can be concluded that the ability to think creatively is an ability to develop new ideas, works, and ideas as an effort to overcome and analyze problems, and offer solutions to these problems (Ulandari, 2016).

The results of observations at three different junior high schools in Bengkulu showed that there are different percentage results from the assessment which from the analysis showed that students' creative thinking skills were still low. This is proved by the results of the analysis of the instrument questions that invlve the indicators of creative thinking ability, which are as follows tabel 1.

As it has been explained that the nature of science should be raised in the learning process in schools (Avenzora, A.,

Tabel 1. Problem Analysis Result

School Initial	Results of Analysis of Creative Thinking Test
Very Good (SB)	5
Good (B)	4
Enough (C)	3
Less (K)	2
Very Poor (SK)	1

Source: Observation Results (2020)

& Winarsih, W., 2020). It is intended that students can understand concepts related to the universe and its contents that appear in everyday life and be able to analyze and solve problems in the surrounding environment by involving the process of thinking and reasoning through scientific methods. Science learning is also expected to train students to carry out empirical observations in hypothesis testing, so that students can gain meaningful experiences and improve their thinking skills, and can easily solve science problems.

Based on this description, teachers should prepare themselves to be able to teach material more creatively and facilitate learning with various kinds of learning innovations so that the learning process can be carried out optimally. The purpose of the ability to think creatively is to be able to communicate and obtain solutions to solve problems that arise in life. Furthermore, an individual can be said to have good creative thinking skills if the individual has the abilities of imaginative thinking, solution, initiative, openness, and a broad sense of curiosity (Muhibbin, & Hidayatullah, MA, 2020).

Creative thinking also generally arises as a result of personal interactions with the environment. So it can be concluded that creative thinking is a process that involves the individual's ability to develop or create different ideas, ideas, and works. In addition, each individual also can think creatively, but what makes the difference is its level. Creative thinking can also be assumed as one of the developments of thinking at the highest level in an individual's cognitive stage.

Based on this background, this research needs to be carried out, namely "Development of an Assessment to Measure Creative Thinking Ability in Science Subjects for Class VII Junior High School Students in Bengkulu City".

METHOD

This research was conducted as an effort to advance science and obtain new information. The type of research used is research and development (Sugiyono, 2012).

As it is stated by Borg and Gall, instructive innovative work is the cycle used to create and approve instructive items. Thus, the improvement research that will be carried out is to develop an evaluation item as an instrument to measure students' creative thinking abilities. The feasibility of the items was obtained from the validation results by material experts, media experts, and junior high school science teachers and then tested on seventh-grade students of junior high school. The stages of the research are shown in the figure 1.

Of the ten steps, research is limited by adjusting the research and development needs to be carried out so that the steps

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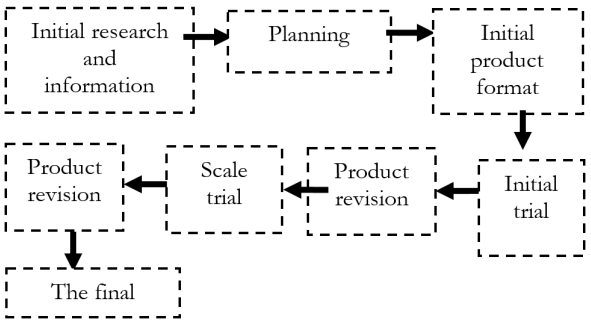

Figure 1. Research stage chart

carried out only reach the development stage.

RESULT AND DISCUSSION

The assessment validity should be carried out to measure the level of students' creative thinking skills obtained from the validation results by three expert lecturers (assessment, material, and language). As it has been stated that the validity of a product or instrument is carried out to determine the feasibility of the product or instrument to be used in a study (Astuti, RK, & Hayati, MN, 2019). According to Kunandar (2014), an instrument can be stated as feasible or valid, if the instrument can measure exactly what is to be measured. Therefore, validation is carried out and given by experts who are masters in the topic of the interaction of living things with their environment. According to Fariyani (2015), feasibility testing needs to be carried out to find out whether the test instrument can be used to measure the ability of students.

Furthermore, the results of the study indicate that the items on the creative thinking ability are feasible. The validity of the items includes 13 aspects of assessment and 8 aspects in terms of material and language. Based on the validation results, it was obtained that the feasibility of the assessment was 81.5%, the feasibility in the language aspect was 88.8%, and the material aspect was 94.4%. So that it can be concluded that the development of creative thinking assessment in the topic of the interaction of living things and their environment is included in the valid criteria and very suitable to be used without any revisions.

CONCLUSION

The feasibility of this development product was tested by 3 lecturers, namely: 1 lecturer as an assessment expert, 1 lecturer as an expert in the field of language, and 1 expert lecturer in the field of material. Based on the results of the assessment validation of 81.5%, language validation of 88.8%, and material validation of 94.4%. The development of creative thinking assessment in the topic of the interaction of living things and their environment is included in the valid criteria which means that this instrument is very suitable to use in the learning process.

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BRIEF PROFILE

Redo Akbar, was born at Manna on July 9th, 1999. The level of education that has been taken was SD Negeri 28 Bengkulu Selatan, SMP Negeri 3 Bengkulu Selatan, SMA Negeri 6 Bengkulu Selatan, and S1 at UINFAS BENGKULU on the Department of Natural Science Education, Faculty of Tarbiyah and Tadris.

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