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THE EFFECT OF SCIENCE DEVELOPMENT ON THE APPLICATION OF THE PROBLEM BASED LEARNING PROBLEM LEARNING MODEL OF IPA STUDENTS IN CLASS IV SDN 3 TAPA

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Abstract:

The existence of science cannot be separated from history which is the track record of all the series of emergence of various sciences that have developed to date. Critical thinking is the first step to form a paradigm in producing revolutionary science. This article will discuss the interrelationships of the process of the formation of previous knowledge which now in theory still has a close relationship, especially in problem based learning learning models. This learning method aims to make students able to address real problems by way of critical thinking and skills in acquiring knowledge.

Key Words: Development of Science, Learning Model, Problem Based Learning

INTRODUCTION

The development of science and technology in Indonesia continues to grow. Competition is getting tougher and people are required to be able to compete in the face of challenges in the era of globalization. The international community will recognize the progress of the nation if most of the people are able to master, utilize, and develop science and technology. The development and progress of a nation's civilization is closely related to education. Because education is basically an effort to provide certain knowledge, insight, and skills to individuals to develop their potential, so that they are able to deal with any changes that occur.

Education plays an important role in improving quality human resources. Education aims to educate the life of the nation and state and increase human dignity. Through education, a person will have knowledge, skills, and experience. This is in accordance with the Law of the Republic of Indonesia No. 20 of 2003 which states that: National education functions to develop capabilities and shape the character and civilization of a dignified nation in the context of educating the nation's life, aiming at developing the potential of students to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become democratic and responsible citizens."

Along with the times and the development of science, efforts are needed so that learning Natural Sciences (IPA) is conveyed properly through various learning methods. Natural Sciences (IPA) is one of the academic subjects taught in schools (SD). By studying science, students can gain the ability to think in developing creativity and early interest in the natural surroundings. According to Susanto (2013:167) science is a human effort in understanding the universe through precise observations on the target, and using procedures, and explained by reasoning so that a conclusion can be obtained.

The objectives of learning science according to Samatowa (2010:06) are: 1) Science is useful for a nation and for the welfare of the nation, because science is the basis of technology; 2) train or develop critical thinking skills; 3) have educational values that can shape the child's personality as a whole. One of the learning models that can be applied is the Problem Based Learning model. Problem-based learning (PBL) is a learning model that uses real-world problems as a context for students to learn about critical thinking and problem-solving skills. In other words, problems can encourage seriousness and think in a meaningful way (Sitiatava 2013:65).

Problem-based learning begins with real-world problems that can be raised by students or teachers, then students deepen their knowledge about something they already know as well as what they need to know to solve the problem. skills to interpret information, and learn adult roles with simulations and/or real experiences.

Problem based learning (PBL) learning model. A learning model with a student learning approach on authentic problems so that students can construct their own knowledge, develop higher skills and inquiry to make students independent and increase students' self-confidence. The Problem Bases Learning (PBL) learning model is very relevant to science subjects in that magnetic force is one of the basic science competencies that must be learned by elementary school students and is closely related to everyday life. The PB:L method is a learning model that involves students from the beginning of planning the problem to presenting the results report. Students can observe and define the material

provided by the teacher by conveying the learning objectives and the topic of the material, students make hypotheses or guesses with the problems given by the teacher, students conduct experiments with groups to determine results and the teacher guides groups for problem solving, students collect data, present the results of group work. the teacher guides the presentation of group results and makes conclusions and guides students to make summaries.

RESEARCH METHODS

This study uses a quantitative method, which was carried out in class IV at SDN 3 Tapa, Tapa District, Bone Bolango Regency, Gorontalo Province. In collecting data the object was fourth grade students. The research design is one group Pretest Posttest, while the data collection technique uses a test by presenting a description of the observation sheet and documentation.

RESULTS AND DISCUSSION

Definition of Science

According to Rahmat (2019:45) Science begins with curiosity, which is a characteristic of humans. Humans have a curiosity about the objects around them, such as the moon, stars, and the sun and even want to know about themselves. Science is a search for practical meaning, namely explanations that can be used. This explanation has been the basis of human science from prehistoric times to the early 20th century.

According to AF Calmer, what is meant by science is intellectual activity which includes: observing, sorting or distinguishing, selecting, experimenting and developing (AFCalmer). Science in this case starts from human activities observing various kinds of natural phenomena in the form of problems faced and then choosing, distinguishing as well as sorting out the indicators needed for problem solving. After having sufficient data then conducting experiments and developing their findings in the context of science. The human ability to develop knowledge is caused by two things: first, humans have a language that is able to communicate information and the way of thinking behind the information and second, humans have the ability to think according to a certain frame of mind (Jujun S Suriatmaja, 1994: 40). . This is what distinguishes humans from other creatures because humans have reason that guides human thinking systematically.

Development of science

According to Rahmat, (2019:46) The development of science as it is today does not take place suddenly, but occurs gradually, evolutively. Therefore, to understand the history of the development of science, we must do the division or classification periodically. Because each period displays certain characteristics in the development of science. Discoveries after discoveries made by humans until today are not concentrated in one particular place or region.

The development of science will occur if the old paradigm experiences a crisis and eventually people develop a new paradigm that is more rational and logical. The development of science basically aims to achieve theoretical perfection. According to Thomas Khun, science can progress in a certain sense, if it cannot achieve absolute perfection in the connotation, it can be formulated with a theoretical definition. Therefore, he views that science develops in an open-end manner or is always open to be reduced and developed (Kuhn: 1962).

According to Karl RPopper, a paradigm shift or the emergence of a new theory begins with falsification (Karl R. Popper: 1959) while Kuhn calls it an anomaly (Khun: 1962). There are several things that cause science to fall into error, namely: first, the theory was made in a past condition that was no longer appropriate , second, the theory was built in a society that was different from the field, and third, the limitations of observations in building theory (Karl R. Popper : 1959).

Science Learning in Elementary School

IPA is an abbreviation of "Natural Science" which is a translation of English "Natural Science". Naturalb means natural or related to nature. Science means knowledge. So according to the origin of the word, IPA means the science of nature or the science that studies events in nature (Srini M. Iskandar, 1996: 2).

Science is rational and objective knowledge about the universe and all its contents (Hendro Darmodjo, 1992: 3). According to Nash 1963 (in Hendro Darmodjo, 1992: 3) Science is a way or method to observe nature which is analytical, complete, accurate and connects one natural phenomenon with other natural phenomena. Meanwhile, according to Powler (in Winaputra, 1992:122) Science is a science that deals with natural phenomena and systematic objects that are arranged regularly and generally accepted in the form of a collection of observations and experiments.

Science is often referred to as science. Science is a translation of the word science which means the problem of nature (nature). Science is knowledge that studies natural phenomena (Usman Samatowa, 2010:19).

Science is knowledge whose truth has been tested empirically through the scientific method (Uus Toharrudin, SriHendrawati 2011:26). Science is a way of investigation to obtain data and information about the universe using observational methods and tested hypotheses (Uus Toharrudin, SriHendrawati 2011:27).

Based on the understandings of science/science above, it can be concluded that in essence science consists of 3 main elements. The three elements are product, scientific process, and attitude cultivation. Science is not only knowledge about nature which is presented in the form of facts, concepts, principles or laws (IPA as a product), but also a way or method to know and understand natural phenomena (IPA as a scientific process) and efforts to cultivate scientific attitudes (IPA as an attitude).

Learning Model Problem Based Learning

Life is synonymous with facing problems. This learning model trains and develops the ability to solve problems that are oriented towards authentic problems from the actual life of students, to stimulate higher-order thinking skills. Conditions that must be maintained are conducive, open, negotiated, and democratic atmosphere.

According to Duch (1995) in Aris Shoimin (2014:130) suggests that the understanding of the Problem Based Learning model is: Problem Based Learning (PBL) or problem-based learning is a teaching model characterized by real problems as a context for students to learn to think critically. and problem-solving skills and gain knowledge. Finkle and Torp (1995) in Aris Shoimin (2014:130) states that:

PBL is a curriculum development and teaching system that stimulates the development of problem-solving strategies and the basics of knowledge and skills by placing students in an active role as solvers of everyday problems that are not well structured. The two definitions above mean that PBL or PBL is a learning atmosphere that is directed by a daily problem.

Meanwhile, according to Kamdi (2007:77) argues that the Problem Based Learning Model is defined as a learning model in which it involves students to try to solve problems by going through several stages of the scientific method so that students are expected to be able to learn knowledge related to the problem and at the same time students are expected to have skills in solving problems. From the definitions above, it can be concluded that the Problem Based Learning model is a learning approach that seeks to apply problems that occur in the real world as a context for students to practice critical thinking and gain skills in problem solving. , and unforgettable to gain knowledge as well as important concepts from the teaching material discussed.

CONCLUSION

The development of science is increasingly influential on all aspects of life, one aspect that is developing is education. Various efforts in education have been carried out in stages, consistently and adapted to the development and progress of science. Therefore, efforts to improve the quality of educators are a priority.

Through educators who assist students in gaining and gaining knowledge and knowledge through a combination of problem-based learning activities. Problem based learning (PBL) in science learning is a learning model where students can think critically and gain skills in problem solving, as well as not forgetting to gain knowledge as well as important concepts from the teaching material discussed.

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