



Implementation of the scientific approach in the Merdeka curriculum at the high school level.

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Abstrak

Penelitian ini dilakukan untuk mengeksplorasi penerapan pendekatan saintifik dalam Kurikulum Merdeka dengan fokus pada dampaknya terhadap hasil pendidikan di Indonesia. Metodologi yang digunakan dalam penelitian ini adalah deskriptif kualitatif, dengan memanfaatkan penelitian kepustakaan untuk mengumpulkan data yang relevan. Analisis dilakukan dengan menetapkan tujuan, mengklarifikasi konsep penting, menentukan unit analisis, mengumpulkan data yang relevan, dan menetapkan hubungan konseptual antar data. Hasil penelitian menunjukkan bahwa pendekatan saintifik, yang melibatkan observasi, tanya jawab, pengumpulan informasi, penalaran, dan komunikasi, dapat meningkatkan kemampuan intelektual dan berpikir kritis siswa. Fleksibilitas Kurikulum Merdeka dan penekanan pada pembelajaran yang berpusat pada siswa mendukung keterlibatan aktif dan kemandirian peserta didik. Pendekatan ini sesuai dengan tuntutan pendidikan modern, yang bertujuan untuk mempersiapkan siswa menghadapi tantangan dalam lanskap global yang terus berkembang.

Kata Kunci: *Pendekatan ilmiah, Kurikulum Merdeka, pembelajaran yang berpusat pada siswa, inovasi Pendidikan.*

Abstract

This research was conducted to explore the application of scientific approaches in the Merdeka Curriculum with a focus on its impact on educational outcomes in Indonesia. The methodology used in this study is descriptive qualitative, by utilizing literature research to collect relevant data. Analysis is carried out by setting goals, clarifying important concepts, defining units of analysis, collecting relevant data, and establishing conceptual relationships between data. The results showed that a scientific approach, which involves observation, questioning, information gathering, reasoning, and communication, can improve students' intellectual and critical thinking abilities. The flexibility of the Independent Curriculum and the emphasis on student-centered learning support the active involvement and independence of learners. This approach is in keeping with the demands of modern education, which aims to prepare students for challenges in an ever-evolving global landscape.

Keywords: *Scientific approach, Merdeka Curriculum, student-centered learning, educational innovation.*

Introduction

The curriculum set by the government as a guideline for teachers in compiling the curriculum at each level of education is a national curriculum. However, this should be evaluated periodically and improved to suit the characteristics of students and the development of contemporary issues. This

updated curriculum is at the level of educational units. Thus, there is a difference between the national curriculum and the curriculum at the education unit level (Kemdikbud, 2022); the change in the curriculum from the 2013 Curriculum or K-13 to the Independent Curriculum requires several schools and educators to gradually complete the needs needed in learning and teaching

activities in schools, including teaching tools. In this case, educators have the freedom to modify, create their own, and choose teaching tools that suit the context, characteristics, and needs of students. Curriculum development is carried out as an effort to anticipate changes that occur due to the development of the times, by taking into account the situation, conditions, and values that apply in society. The preparation of curriculum must be carefully prepared so that students can develop the necessary competencies in the use of technology in accordance with existing needs. The role of teachers is vital in supporting the growth of students so that they can achieve their life goals to the maximum. In this context, teachers are expected to have expertise in selecting or even combining practical approaches to address classroom management problems that are appropriate to the situation at hand (Zamili, 2020).

(Sidik, 2016) in the quote (Salmiyanti, 2023) Education has a vital role in the progress of a country. With quality education, new knowledge can be created that is useful for creating quality human resources. Quality human resources are essential for the advancement of a country to a higher level of development. Therefore, some countries must have a quality education system. According to the tremendous Indonesian dictionary, the origin of the word "education" can be traced back to the word "education." However, education itself has a deeper meaning in the process of changing attitudes and behaviors. The essence of human beings is that they are creatures who have a wide range of curiosities.

The curriculum plays a vital role in the world of education because it is related to the determination of goals, materials, and learning methods, which ultimately affect the quality of graduates from an educational institution. Accompanying the development of the times and the demands of the community, the world of education must enforce innovations in education. Educational innovation will run and achieve its goals if the educational program is designed and implemented in accordance with the conditions and demands of the times. As an implication of the importance of educational

innovation, it demands awareness of the role of teachers (Fatmawati, 2021).

The curriculum is a dynamic learning plan because it constantly changes according to the development and challenges of the times. Along with the progress of a country, the challenges it faces are also getting heavier. The increasingly intensified competition in science carried out by the international world encourages Indonesia to be able to compete globally in order to raise the dignity of the nation. Therefore, in facing the upcoming challenges in the field of education, firmness is needed in the curriculum and its implementation to improve educational achievements that are still lagging compared to developed countries in the world. However, in the development of the curriculum, various problems are often encountered that require consideration and solutions. In the history of education in Indonesia, there have been several updates and improvements to the curriculum aimed at achieving maximum results (Anggraini, 2022).

The policy of the Ministry of Education and Culture of the Republic of Indonesia is to implement the Independent Curriculum to develop the ability to think independently in students or students. If teachers do not have freedom in teaching, then students will also lose their freedom of thought (Khoirurrijal, 2022). The implementation of the concept of the independent learning curriculum in all educational institutions in Indonesia today is the right step. This concept not only has a positive impact on the development of students but also makes it easier for teachers to apply innovative learning methods. Teachers can overcome the burden that they have borne through the implementation of the independent learning curriculum. In addition, this concept is also a solution to facing educational challenges in the current era of digitalization. Therefore, as academics, we must be at the forefront of driving the implementation of the independent learning curriculum in Indonesia (Nasution, 2023).

This approach focuses on learners. The scientific approach is a method that uses scientific steps and principles in the learning process. By applying a scientific approach, the

role of teachers can be reduced because all students will be involved in solving problems given by teachers. The purpose of scientific learning is to improve intellectual ability, especially the ability to think at a higher level. According to Permendikbud Number 103 (2014), the scientific approach has five learning experiences, namely observing, questioning, gathering information/trying, reasoning/associating, and then communicating (Pinatih, 2021).

One of the methods that is highly recommended in the independent curriculum is a scientific approach. The scientific approach is one of the methods designed so that students can be active in understanding learning concepts, laws, or principles (Santosa, 2022). The use of a scientific approach in the learning process is able to increase students' learning achievement in terms of knowledge, understanding, and ability to apply subject matter (Setiawan, 2020). (Rudyanto, 2014) in quotation (Santosa, 2022). The components of the scientific approach include observing, asking questions, reasoning, conducting experiments, and building relationships between the information obtained. This approach is very directed in the learning process in the independent curriculum. In independent curriculum learning, students are expected to think actively, critically, and scientifically in learning.

Based on the results of research and information from various relevant sources, there is a significant connection in the application of the scientific approach in the independent curriculum. This approach also spreads to various relevant areas of education. (Ramadhan & Lismawati, 2022) One of them is the development of students. In Indonesia, the independent learning curriculum was introduced. In the context of education analysis, the independent learning curriculum in Indonesia poses a number of challenges, especially when considering its impact on education.

Method

(Anggraini, 2022) This study applies the qualitative approach, where the research only describes the conditions of the variable object

being studied without making comparisons and is independent. The research method used is library research. The data analysis process includes setting expected goals, clarifying crucial concepts, determining units of analysis, searching for relevant data, and building conceptual relationships between the collected data to present the data. The findings of the research will be described descriptively in accordance with the existing problems and research objectives. (Annisa Alfath et al., 2022).

Then, in this study, a literature study method with a descriptive analysis approach is used. The data sources used in this study include scientific books, research reports, scientific essays, and journals (Kurniawan et al., 2020). Secondary data sources used in this writing come from works that are still relevant, such as theses, dissertations, theses, books, and articles that are still related to the research theme. Content analysis, also known as "content analysis," is a type of research that involves an in-depth discussion of information that is written or printed in the media. Harold D. Lasswell is recognized as a pioneer of content analysis and the creator of symbol coding techniques, such as the systematic recording of symbols or messages and their interpretation (Asfar, 2019). (Sukardi, 2013) in citations (Rohimah, 2021). Literature review plays a vital role in the formation of concepts or theories that are the basis of research, as well as aiming to develop theoretical aspects and practical benefits.

Result and Discussion

Scientific Approach in the Independent Curriculum

Learning with a scientific approach is a learning process that has been designed with the aim that students can actively build concepts, laws, or principles through a series of stages. These stages include observing (to identify or find problems), formulating problems, proposing or formulating hypotheses, collecting data using various techniques, analyzing data, drawing conclusions, and communicating concepts that have been discovered

(Oktaviara, 2019). In order to overcome this problem, it is essential to update the curriculum so that individuals can have skills in solving problems in various scientific fields. The Indonesian Minister of Education has proposed the Freedom of Learning policy as a solution to this (Rahim, 2023), viewing the curriculum as a crucial element in improving the quality of education in Indonesia.

The Independent Learning Curriculum was initiated with the aim of bringing a new spirit to making positive changes in the world of education. This curriculum focuses on providing flexible, fun learning opportunities and freeing students from specific pressures, threats, and limitations that exist (Sesfao, 2020); according to (Indarta et al., 2022) The intention is to form a generation that can analyze and respond to every concept taught, beyond just memorizing. Students are encouraged to make the most of technology in every lesson.

Active learning is a learning method that involves the active participation of students in various activities to find diverse information and knowledge that will be learned in the classroom (Hardini, 2017), The application of this active learning method is highly recommended so that it can be directed with scientific approach steps. One of the scientific approaches that can be used is the Scientific approach. The scientific approach is a learning method that requires students to think systematically and critically in an effort to solve problems that are difficult to find a solution. In this context, the learning will involve students in complex problem-solving activities through brainstorming, creative thinking, conducting learning activities, and being able to build knowledge conceptualization (Abidin, 2014) in a quote (Fitrah, 2022) From this scientific point of view, it can be concluded that the elements

of the scientific learning approach consist of 5M: Observing, Asking, Trying, Reasoning, and Communicating. Therefore, these elements are very suitable to be applied in the current curriculum, namely the independent curriculum. Currently, the world has entered a new era, including Indonesia.

Scientific Approach Learning Process

The scientific approach was first introduced in the world of education in the United States at the end of the 19th century. This approach emphasizes formalistic laboratory methods that lead to scientific facts. The main characteristic of this scientific approach is "doing science." By using this approach, educators or curriculum developers can more easily improve the learning process with more detailed steps and clear instructions for students in carrying out learning activities (Maryani, 2018). The development of the current curriculum has made significant progress. The purpose of curriculum development is to improve the quality of education, considering that the curriculum is the core of an education system. Currently, we know that there is an independent curriculum that aims to create active and creative learning. This program is not intended to replace the program that is already running but rather to provide improvements to the existing system (Aprima, 2022).

The independent curriculum is considered essential to overcome the learning shortage in Indonesia, which is based on various study results that show that students are not able to master basic literacy. A student-focused learning approach and the role of educators as facilitators are expected to bring significant changes to the world of education in Indonesia (Hamdi, 2022). The learning process that runs well in schools, both formal and non-formal schools, is a process that is consciously and carefully planned.

The learning plan is prepared with the aim that students can achieve all competencies. Therefore, each educational unit is required to plan learning. Educators have a vital role in developing learning plans. Learning planning is not only an administrative task for educators but also the leading guide in the learning process in the classroom (Maryani, 2018). The learning process called the scientific approach is a method that allows students to actively build concepts, laws, or principles through a specially designed scientific approach (Lestari, 2020). *Independent Curriculum Uses a Scientific Approach*

According to the Great Dictionary of the Indonesian Language (KBBI), a scientific approach refers to the use of theories in a field of science to solve a problem. Meanwhile, the learning approach is a process carried out by teachers in presenting subject matter to students. In presenting the subject matter, teachers usually collect information from various sources and then convey it to students through methods that are tailored to the characteristics of students. Methods in the learning curriculum are the philosophical and theoretical foundations that are the basis for individuals to achieve goals. Learning with a scientific approach is learning that follows scientific steps in

building knowledge through scientific methods. The scientific approach, known as the Scientific Approach, is a method that is based on agreed knowledge and can be systematically tested using a set of methods recognized in a particular field. When a teacher uses a scientific approach in the learning process, he must follow scientific principles such as observation, reasoning, discovery, validation, and explanation of certain truths.

Conclusion

The flexibility of the Independent Curriculum and the emphasis on learner-centered learning also support the active involvement of individual learners, which is in line with the demands of modern education in preparing students to face global challenges, especially in an ever-evolving education.

Therefore, it can be concluded that the scientific approach in the Independent Curriculum has succeeded in creating a more dynamic and interactive learning environment, improving the quality of education, and equipping students with the necessary skills to compete in the global era. However, the successful implementation of the Independent Curriculum also depends heavily on the readiness and competence of teachers to adopt innovative learning methods in accordance with the needs of the times.

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