Journal of Positive School Psychology http://journalppw.com
2023, Vol. 7, No. 3, 565-573

Developing Educational Curriculum In Indonesia Using Scientific Approach

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ABSTRACT

The education curriculum in Indonesia is still not running optimally, this is because there are still many obstacles in its implementation. The problems that arise in implementing this curriculum include many teachers who do not understand the application of the 2013 curriculum properly, facilities and infrastructure that do not support it, and assessments that are authentic. This research aims to develop a curriculum in Indonesia using a scientific approach which has been a polemic so far to create quality education. The research method used is qualitative research with library research data collection techniques. The results of the study show that curriculum development uses a scientific approach focusing on questioning, reasoning, trying, and communicating as well as conducting learning evaluations that focus on 3 aspects, namely cognitive, affective and psychomotor. In its implementation, there are still several problems in implementing the 2013 curriculum, namely a lack of understanding in preparing learning implementation plans so that the implementation of learning with a scientific approach is not optimal, and the difficulty in conducting learning assessments. So that there is a need for regular training and coaching for teachers regarding the implementation of the 2013 curriculum, equitable distribution of facilities and infrastructure in each school, and providing more time for conducting assessments.

Keywords: Curriculum, Education, Scientific Approach

INTRODUCTION

In the education system, the curriculum is dynamic and continues to be adjusted to the times to improve the quality of education. In addition to the curriculum, there are several other efforts that can improve the quality of education including changes in students' attitudes, behavior, and skills, as well as a high enthusiasm for learning and shows learning success (Redhiana, 2014). Curriculum is also defined as a set of ideas, opinions, or principles that serve as a benchmark for curriculum development, known as curriculum

development. (Afif et all, 2022). Using Law no. 20 of 2003 concerning the National Education System, the curriculum can be understood as a collection of plans and arrangements regarding objectives, content, learning materials, and strategies used as guidelines for organizing learning activities to achieve certain educational goals. One of the cases in Madiun district with a repeating rate of 198 students was the result of implementing the 2013 curriculum, which can be seen in the table below.

New Students, Repeating, and Elementary Level Graduates, 2017

Subdistrict	New student	Students Repeat	Graduate of
01. Kebonsari	324	3	422
02. Geger	550	12	664
03. Dolopo	533	10	604
04. Dagangan	383	13	429
05. Wungu	499	29	472
06. Kare	390	19	352
07. Gemarang	450	13	442
08. Saradan	795	17	877
09. Pilangkenceng	616	13	677
10. Mejayan	653	11	652
11. Wonoasri	318	13	367
12. Balerejo	450	21	515
13. Madiun	296	11	384
14. Sawahan	153	5	199
15. Jiwan	396	8	475
Total	**6 806**	**198**	**7 531**

Source: Education and Culture Office, Madiun Regency

The results of the National Socio-Economic Survey in March 2022, the dropout rate at the high school level reached 1.38%, junior high school was 1.06% and elementary school dropout was 0.13% (Widi, 2022). Not only the dropout rate, what often happens is that the curriculum used changes every time a member of the cabinet, in this case the minister of education, is replaced. (Afifah, 2017). Because, there is nothing that prevents the national education system from achieving its goals. Because each sector has its own egoism and interests, everyone follows their wishes (Kadi & Awwaliyah, 2017).

In 2017, there were still students repeating in the Madiun Regency area (BPS, 2019). Meanwhile in Lhokseumawe, Aceh, research shows that teachers' abilities in planning, implementing, and assessing the processes and results of the 2013 curriculum are good but not optimal, especially in terms of time management and the use of 2013 curriculum assessments that are not authentic (Haslina & Usman, 2017). This makes that curriculum management must be a concern and used as a basis for improving the quality of education.

Efforts Scientific approach in curriculum development is one way to improve the quality of education. The scientific approach in education is a teaching method that emphasizes giving direct experience to students either through observation, experimentation, or other methods, so that the lessons they learn are based on what they see, feel, and experience. Data and information collected by scientific methods are not only reliable but also accountable (Hilda, 2015). This shows that the scientific approach not only guides formal learning but also observation and reasoning, so that it becomes an excellent target for the expansion and development of school education.

The implementation of the 2013 curriculum that was not optimal was caused by teachers who did not fully understand the implementation of the 2013 curriculum, uneven facilities and infrastructure, and authentic learning assessments. Based on these problems, the authors are interested in conducting research with the title "Developing the Education Curriculum in Indonesia Using a Scientific Approach". The aim is to develop a strategy for compiling an educational curriculum based on a scientific approach.

RESEARCH METHODS

This research is descriptive qualitative, using a literature study approach based on predetermined problems. Library research is a research activity carried out by collecting various materials such as books, articles, results of previous research, online news, references and other literature related to the problem to be solved (Sari & Asmendri, 2020). The steps for compiling this library research are by preparing equipment, compiling a work bibliography, managing time, reading and making research notes (Sari, 2021). This research uses an electronic database in the form of research journals from 2017-2022. There is also some secondary data that comes from government websites (Central Statistics Agency), electronic newspapers (Kompasiana), and statistical data provider websites (dataindonesia.id). The data sources that have been collected are classified based on the background of the issues raised, the research objectives, and the research results obtained. After being classified, the writer makes small notes from data sources which are then processed to develop a strategy for compiling an educational curriculum based on a scientific approach.

RESULT & DISCUSSION

Students must be given the freedom to think, understand problems, develop problem-solving strategies, and freely and openly express their

ideas when learning according to the 2013 curriculum. The teacher's activity in learning is to teach students to solve problems through a critical attitude. and think creatively. In study groups, teachers must be able to manage cooperation. It is hoped that all work results will be displayed in front of the class to highlight various learning concepts, problem solving results, and principles. Learning balances affective, psychomotor, and cognitive aspects rather than focusing on just one aspect. (Sinambela, 2017). The problem is, students must accept lessons unilaterally without evaluating whether the information is in accordance with educational goals.

In practice, the 2013 curriculum is faced with situations where teachers have the ability to: 1) Prepare lesson plans that can attract and entice students to want to be involved in the learning process, according to Permendikbud Number 65 of 2013 concerning Process Standards, Learning Implementation Plans (RPP) are face-to-face learning activity plans advance for one or more meetings. RPP was developed from the syllabus to direct students' learning activities in an effort to achieve Basic Competence; 2) carrying out a scientific learning process that focuses on the five M activities, namely: observing, asking, trying, reasoning, and communicating; and (3) focus on three aspects of learning evaluation: psychomotor, affective, and cognitive. Teachers are expected to think, act and speak professionally in order to realize themselves as professional educators, especially when interacting with students during the learning process (Wahyuni, 2019). This demonstrates the teacher's capacity to encourage two-way communication as a method of assessing student acceptance.

No matter how good the government makes the curriculum, it will not be implemented if the teacher does not have the ability to put it into practice. This is true regardless of how well-crafted the curriculum is. (Ahmed, 2014). Teachers will not be able to incorporate curriculum content into learning if they do not have knowledge of how to implement it, thus preventing students from receiving instruction in accordance with the applicable curriculum. (Zamily, 2020). Even though the 2013 Curriculum only functions as a supporting medium, its success still depends on how well the teacher can explore and integrate it into the learning system.

Learning systems are needed to plan a learning environment that is fun and conducive to learning. The level of student participation in classroom learning shows the teacher's ability to manage the class effectively (Tanjung & Namora, 2022). Teacher's interactive and communicative mastery of students is an indicator of success in creating a conducive learning situation.

One way to find out whether an education system is running well is to look at its facilities and infrastructure. Student learning will be influenced by these facilities and infrastructure. Work equipment, facilities and equipment that function as primary or secondary tools to carry out work as well as important matters that are also related to the organization are called facilities and infrastructure. (Moenir, 2006). Students' understanding of the use of facilities can maintain the quality of education.

Typically, available school equipment such as books, computers, tables, chairs, and stationery are educational facilities, while classrooms, computer rooms, laboratories, libraries, and fields are educational infrastructure. Unfortunately, not all educational institutions in Indonesia have facilities and infrastructure that meet these standards. School is one of the educational institutions where inequality cannot be denied. Village and city school facilities and infrastructure are different. The lack of coordination between the central government and local governments is one of the factors causing the uneven distribution of facilities and infrastructure. Sometimes, central government

supervision and control of education does not reach remote areas (Ashyfa, 2021). The inability of the region to provide facilities and infrastructure limits the options available. There are even places where students have to take turns studying or where there is a crisis of students not wanting to go to school.

The 2013 curriculum assessment model is very different when compared to the previous curriculum. Teachers are not used to doing authentic assessments, namely learning assessments known as work evaluations (performance) based on what students have learned. Through authentic assessment, ideas are generated, information is integrated, and assignments related to real-world competencies are perfected. (Sani, 2022). The current situation requires educators to master the curriculum before conveying information to students. By underlining the skills and capacity to describe the meaning contained in a curriculum.

The difficulties faced by teachers in carrying out authentic assessments include compiling too many questions, too complicated assessment formats, and a short time to prepare assessment reports which are obstacles in the implementation of assessments. (Astuti, 2017). Teachers should have a plan for managing time, especially how to get around so they don't make mistakes so as to achieve success through breakthroughs in effective and systematic learning patterns.

Based on observations and literature reviews conducted by the author, the 2013 curriculum development pattern has been going well. This can be seen from the goals in the curriculum to develop students in both cognitive, affective and psychomotor aspects. The curriculum engineering used is the application of learning models that are suitable for use in the application of the 2013 curriculum, namely inquiry learning models, discovery learning, project based learning, and problem based learning.

The learning model is a way of teaching that the teacher presents in a unique way and shows everything from start to finish. In accordance with Permendikbud number 65 concerning process standards, inquiry learning models, discovery learning, project based learning, and problem based learning are learning models that will receive the most attention. during the implementation of the 2013 curriculum (Aysiyah & Mutmainah, 2019).

Table. 1 Learning Models that are Suitable for the 2013 Curriculum

Learning model	Inquiry Learning	1. Observation of the phenomena that occur 2. Asking questions about the phenomena encountered 3. Submitting conjectures or possible answers 4. Collect data related to allegations or questions raised 5. Formulate conclusions based on the data that has been analyzed and processed
	Discovery Learning	1. Stimulation 2. Problem Statements 3. Data Collecting 4. Data Processing 5. Verify 6. Generalizations

	Project Based Learning	1. Prepare questions 2. Prepare project planning 3. Arrange a schedule as the concrete steps of a project 4. Monitor project activities and progress 5. Test results 6. Evaluate activities/experiences
	Problem Based Learning	1. Orient students to the problem 2. Organizing activities 3. Guiding independent and group investigations 4. Develop and present the work 5. Analysis and evaluation of the problem solving process.

Based on the above data, learning models suitable for use in the 2013 curriculum consist of inquiry learning, discovery learning, project based learning, and problem based learning. The application of the learning model to be used is adjusted to the needs of the lesson to be implemented. However, the learning model that meets the criteria for a scientific approach is the inquiry learning model. This can be seen from the steps taken in the learning model which are in accordance with the scientific approach.

Table 2. Conformity between the Scientific Approach and the Inquiry Learning Model

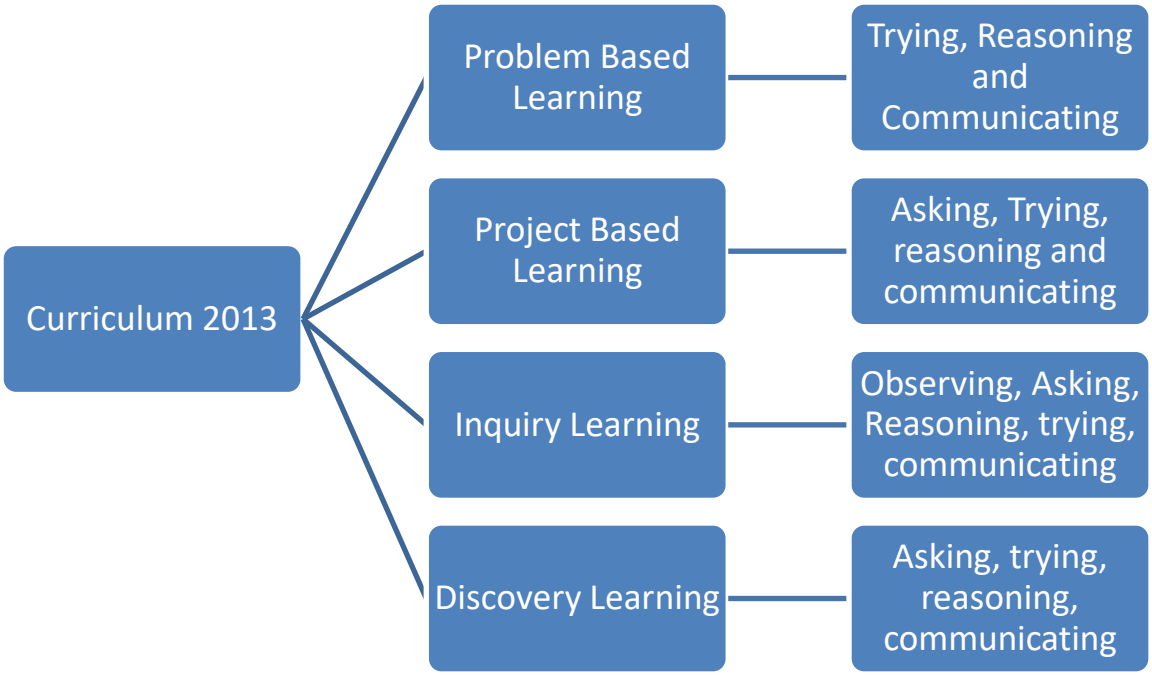
No	**Scientific approach**	**Inquiry Learning Model**
1	Observe	Observations about the phenomena that occur
2	Ask	Asking questions about the phenomena encountered
3	Try	Make guesses or possible answers
4	Reasoning	Collect data related to allegations or questions raised
5	Communicate	Formulate conclusions based on the data that has been analyzed and processed

In contrast to Indonesia, the learning model in Japan is more inclined to Problem Based Learning, namely giving problems to students and then students looking for answers to the problems given. After getting the answers given, the teacher asks follow-up questions regarding the first problem and students look for answers again. Repetition in question and answer is done until students really understand the material to be conveyed in the meeting.

In-depth dialogue and group activities (DMKK) is one of the learning models used in Japan. In DMKK, in-depth dialogue is initiated by the instructor asking key questions that stimulate students to think at a high and deep level by mobilizing all their knowledge and insights. The teacher then asks follow-up questions that probe students' responses more deeply after they have responded to the question. The dialogue (question and answer)

does not end when the student gets the correct answer; rather, it ends when students have a deep understanding (Furqon, 2023).

Based on data on the number of students repeating in Madiun Regency, there were 198 students repeating out of 7,531 students who passed. Means, 2.6% of the number of students who repeat. This makes the 2013 curriculum still suitable for application in the Indonesian educational environment. The following is the concept of integrating the 2013 curriculum development using a scientific approach:



CONCLUSIONS AND RECOMMENDATIONS

Conclusion

1. The teacher still has difficulties in preparing a learning implementation plan (RPP) which formulates learning objectives that are thematically integrative in which the learning objectives of several subjects are packaged into one theme and carried out at the same time. So that there is a need for more intensive coaching for teachers in preparing plans for implementing this lesson.
2. Facilities and infrastructure are not evenly distributed so that learning does not run optimally.
3. It is difficult to make an assessment because students who are passive in learning make the teacher only judge from the cognitive aspect, while the affective and psychomotor aspects are only through daily observations.

Suggestion

1. Conduct regular training and coaching for teachers regarding the implementation of the 2013 curriculum so that learning objectives according to the curriculum are achieved.
2. Improve the problem of equal distribution of facilities and infrastructure in each school so that the learning process is optimal.
3. Give more time to do the assessment, so that the teacher does not make mistakes.

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