



# Analysis of the Implementation of the Independent Curriculum in Mathematics Subjects in Elementary Schools

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**Abstract.** The replacement of the Minister of Education and Research and Technology also changed the curriculum in elementary schools from the 2013 curriculum to an independent curriculum. This study aims to analyze the implementation of the independent curriculum, especially in mathematics in elementary schools. This research was conducted at SD Negeri Palumbonsari I, East Karawang District, Karawang Regency, using a qualitative descriptive. The data collection technique uses teacher interviews, principal interviews and document studies. The study's results show that the first curriculum change started from the 2013 curriculum. Then it changed to the driving school program curriculum in the 2021-2022 school year and the 2022-2023 school year to become an independent curriculum. The two learning plans in the independent curriculum do not use Learning Implementation Plans (RPP) but use teaching modules. The three learning outcomes are divided into phase A for grades I and II, phase B for grades III and IV, phase C for grades V and VI where each learning outcome is for two years. The four lessons in the independent curriculum apply differentiated learning. The five hours of classes have included Pancasila student profile activities. In conclusion, the implementation of the independent curriculum began to be implemented at the beginning of the 2021-2022 school year, so that it was only one semester running; its performance was implemented in grades I and IV so that the implementation of the independent curriculum in elementary schools was not optimal.

**Keywords:** Independent Curriculum, Mathematics, Elementary School.

## 1 Introduction

Changes to the curriculum in Indonesia carried out quite often have resulted in the birth of a term inherent in society, namely "change ministers, change curriculum." Based on Law No. 20 of 2003, a curriculum is a set of plans and arrangements regarding objectives, content, learning materials, and methods to organize learning activities to achieve

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specific educational goals [1]. The curriculum is a reference for every educator in implementing the teaching and learning process. Indonesia is a country that has made changes/revisions to the curriculum several times [2].

For the first time, the history of curriculum development in Indonesia used the 1947 curriculum, usually called the Unraveled Lesson Plan. The concept of the 1947 curriculum supports the formation of the character of the state and social awareness. Indonesia's socio-political order also influenced this curriculum during the Indonesian-Dutch colonial period. Over time, the 1947 curriculum became the 1952 curriculum, namely the 1952 Unraveled Study Plan. This curriculum was similar but experienced slight changes in its use. Changes/revisions to the curriculum are continuing, such as the emergence of the 1964 curriculum (1964 education plan), 1968 curriculum, 1975 curriculum, 1984 curriculum (enhanced 1975 curriculum), 1994 curriculum and 1999 curriculum supplements, 2004 curriculum (competency-based curriculum), 2006 curriculum (education unit level curriculum) and the 2013 curriculum which also has a revised edition.

Curriculum changes are not caused by changing ministers to change curricula. It only seems like that, even though it is not like that. In reality, it is just an opinion that is developing in society. Changes in the 2013 curriculum to a new curriculum, namely the independent curriculum, where this independent curriculum perfects the deficiencies found in the implementation of the 2013 curriculum. Teachers with difficulty integrating thematic learning, especially mathematics, are separated from other subjects. Teachers also need help in pursuing students' minimum completeness criteria (KKM). This is supported by research conducted by Maladerita, et al. [3] which explains that applying the 2013 Curriculum is too complicated.

The curriculum was developed to improve the quality of education because the heart of education is the curriculum [4]. This is in line with Saleh's opinion [5] that Merdeka Learning is a program to explore the potential of educators and students in innovating to improve the quality of learning in the classroom. An independent curriculum is interpreted as a learning design that provides opportunities for students to learn in a calm, relaxed, enjoyable, stress-free and pressure-free way, to show their natural talents [6].

The implementation of the independent curriculum is listed in the eleventh part of the decision of the Minister of education, culture, research and technology of the Republic of Indonesia Number 56/M/2022 that the first year is held in class I and class II, the second year is held in type I, class II, class IV and class V [7]. The third year is held in Class I, II, III, IV, V, and VI. In line with the observations made at SD Negeri Palumbonsari 1, the implementation of the independent curriculum has only started for the 2022-2023 school year, so it has yet to be one semester. The performance is only in the first year and is carried out to students in classes I and IV.

According to previous research conducted by Sumarsih et al. [8] regarding the analysis of the implementation of the independent curriculum in primary school drive schools, a separate curriculum was produced, which became a reference in drive schools, which created students who had noble character, were independent, had critical thinking, were creative, gotong royong, had a sense of diversity. The driving school principal encourages various participatory, unique, and innovative programs. They

were fostering cooperation with teachers who support their leaders to participate in realizing driving schools. The difference in this research focuses on the implementation of the independent curriculum in mathematics in elementary schools. Based on the background of the problems stated above, this research was conducted to provide an overview of the implementation of the independent curriculum, especially in mathematics in elementary schools.

## 2 Method

The approach used in this study is a descriptive qualitative approach. This research collects data and records the phenomena that occur both directly and indirectly; then, the data is described in the form of words or descriptive descriptions without neglecting the data in the form of words. The location of this research was carried out at SD Negeri Palumbonsari which is located at Jl. Syeh Quro Lamaran, Palumbonsari, East Karawang District, Karawang Regency, West Java Province with the subjects of this study totaling one school principal and 2 class I teachers and class IV teachers who implemented the independent curriculum. The collection techniques used in this study were interviews, observations, and documentation studies for data analysis techniques with data reduction, data presentation, and conclusion.

## 3 Result and Discussion

### 3.1 The Results

Based on the results of interviews with the Principal of SD Negeri Palumbonsari 1 namely Beti Nurbaeti, S.Pd. The results of the interview are as follows:

- Researcher : "Permission to ask about the implementation of the existing curriculum at SDN Palumbonsari I"
- Headmaster : "Initially we used the 2013 curriculum to change to the PSP (School Mobilization Program) curriculum in the 2021-2022 school year, and then in the 2022-2023 school year, we used the IKM (Implementation of Independent Curriculum) which was only implemented in grades I and grade IV. So that this school uses three curricula. Grades I and IV use the independent curriculum, grades II and V use the PSP curriculum, and grades III and VI use the 2013 curriculum."
- Researcher : "What is the difference between the independent curriculum and the PSP curriculum and the 2013 curriculum?"
- Headmaster : "The PSP curriculum with independence is the same, because the independent curriculum was developed initially in driving schools, so that the independent curriculum is a refinement of the PSP curriculum. The difference between the 2013 and independent curricula is that there is no longer a learning implementation plan (RPP) but teaching modules, there are no learning objectives. But using learning outcomes that must be taken in two years. There are three phases of this learning achievement. Phase A for class I and II, phase B for class III and IV, and Phase C for class V and

- VI. In the learning process, including one jp for the Pancasila student profile”
- Researcher : "What are the profile activities for Pancasila students in that one JP?"
- Headmaster : "The profile of Pancasila 1 Jp students with applying the dimensions of faith, purity to God Almighty, noble character, independent, cooperative, global diversity, critical reasoning, and creativity. At the West Java level, we won second place for implementing the Pancasila student profile project. For more details on P5 activities, you can ask the class I and IV teachers.
- Researcher : "Are there any obstacles to the implementation of the independent curriculum?"
- Headmaster : "At first, there were obstacles for senior teachers to change the curriculum, so we worked around this for class I and IV teachers at SDN Palubonsari I from young temporary teachers"
- Researcher : "How do you respond to the change of Minister, the curriculum also changes?"
- Headmaster : "Perhaps a change of ministers is synonymous with a change in curriculum. However, our curriculum should have changed in view of technological developments. This curriculum change makes teachers independent in developing classroom learning without having to collide with one-semester learning targets, KKM (minimum completeness criteria), and it is not difficult to combine one theme with other subjects"
- Researcher : "If there is no target for achieving material in one semester, what is the benchmark, ma'am?"
- Headmaster : "For IKM (Implementation of Independent Curriculum) the learning outcomes are for two years. So learning outcomes that were not achieved in class I can be achieved in class II, because they are in phase A”.
- Researcher : "Can you give an example of the use of learning outcomes ma'am?"
- Headmaster : "For example, in the learning achievement of measurement in phase A, children can recognize the attributes of measurable objects such as length, weight, area, and volume. Students can compare and sort length, weight, area, and volume using non-standard units. Learners get standard units for measuring, comparing and sorting length, weight, and duration of time. If this learning achievement is not achieved in class I, it can be continued in class II. Because the application of learning in the independent curriculum applies differentiated learning”
- Researcher : "How is learning differentiated at IKM ma'am?"
- Headmaster : "So the teacher in the class does not have to pursue the achievement of teaching materials, differentiated learning is rooted in the needs of students and the teacher's response to these student needs. So that the teacher pays attention to students and provides appropriate actions according to the needs of students "
- Researcher : "Have all the schools in the East Karawang regional coordinator implemented the independent curriculum?"
- Headmaster : "Not all of them use the independent curriculum, but schools that are still implementing the 2013 curriculum must include Pancasila student profile activities. Schools in the Karawang East Karawang Regional Office that received the driving school program became the driving force for schools in the vicinity in implementing the independent curriculum. So I am often invited to be a facilitator for driving schools”

Fig. 1 show the results of observations of the class I teach, Mrs. Anjar Nurmalia, that the implementation of P5 in IKM in type I, namely a sustainable lifestyle with the theme "Sustainable Lifestyle with the title of the waste project being My Bestie," and referring to the Pancasila Student Profile, this project aims to build residual awareness about the importance of managing waste and take action as a solution to the waste problem. As for the benefits of this project, students are expected to be able to develop the dimensions of the Pancasila student profile, increase their sense of concern for the school environment and become creative and innovative individuals.

Fig. 2 show the results of applying P5 to grade I students led to the acquisition of second place in West Java in the Lively Work of Learning Community Education Transformation.



Fig. 1. Activity P5 (Project Strengthening Pancasila Student Profile) in Class I

Fig. 3 show the results of observations of the class IV teacher, Mrs. Nurhikmah, the application of P5 in IKM in class I, namely a sustainable lifestyle with the theme "Sustainable Lifestyle with the project Title Banksa Strong (Creative Unique Antique and Programmed Waste Bank)" and referring to the Profile Pancasila students, this project aims to grow character and personality in children through waste management in the school environment. The benefits of this project are that students are expected to be able to develop the dimensions of the Pancasila student profile, namely faith and faith in God Almighty and Noble, creativity, Gotong Royong, and related elements.



**Fig. 2.** Acquisition of Champion II in West Java



**Fig. 3.** P5 Activities (Project Strengthening Pancasila Student Profiles) in Class IV

Based on the Decree of the Head of the Education Standards, Curriculum, and Assessment Agency of the Ministry of Education, Culture, Research, and Technology Number: 008/H.KR/2022 concerning Learning Outcomes in Early Childhood Education, Basic Education Levels, and Secondary Education Levels in the Independent Curriculum [9].

The mathematics subject aims to equip students to be able to:

- a. Understand mathematics learning material in the form of facts, concepts, principles, operations, and mathematical relations and apply them flexibly, accurately, efficiently, and precisely in solving mathematical problems (mathematical understanding and procedural skills),
- b. Using reasoning on patterns and properties, performing mathematical manipulations in making generalizations, compiling evidence, or explaining mathematical ideas and statements (mathematical reasoning and proof),
- c. Solve problems, including the ability to understand issues, design mathematical models, complete models or interpret solutions obtained (mathematical problem solving).

- d. Communicating ideas with symbols, tables, diagrams, or other media to clarify situations or problems, as well as presenting a case into characters or mathematical models (mathematical communication and representation), associating mathematics learning material in the form of facts, concepts, principles, operations, and relations mathematics in a field of study, across fields of study, across areas of science, and with life (mathematical connections),
- e. Have an attitude of appreciating the usefulness of mathematics in life, namely having curiosity, concern, and interest in learning mathematics, as well as being creative, patient, independent, diligent, open, challenging, tenacious, and confident in problem solving (mathematical disposition).

The characteristics of mathematics subjects are organized within the scope of five elements. Elements of content in mathematics are related to the view that mathematics is a learning material (subject matter) that students must understand. Mathematical understanding is closely related to forming a flow of knowledge of mathematics learning material in the form of facts, concepts, principles, operations, and formal-universal relations. The elements of mathematical content are shown in Table 1.

**Table 1.** Elements of Mathematical Content

Element	Description
Number	The field of study of numbers discusses numbers as number symbols, number concepts, number arithmetic operations, and the relations between various number arithmetic operations in the sub-elements of visual representation, sequence properties, and processes.
Algebra	The field of study of algebra discusses non-formal algebra in the form of picture symbols and formal algebra in the form of letter symbols that represent specific numbers in the sub-elements of equations and inequalities, relations, and number patterns, as well as ratios and proportions.
Measurement	The field of study of measurement discusses measurement quantities, how to measure specific amounts, and proving principles or theorems related to particular portions in the sub-elements of measuring geometric and non-geometric quantities.
Geometry	The field of study of geometry discusses various shapes and geometric shapes in both Euclidean and non-Euclidean studies and their characteristics in the sub-elements of flat geometry and spatial geometry.
Data and Opportunity Analysis	The field of study of data analysis and opportunity discusses the meaning of data, types of data, data processing in various forms of representation, and analysis of quantitative data related to the concentration and distribution of data and the opportunities for the emergence of certain data or events in data sub-elements and their representations, as well as uncertainties and opportunities.

The process elements in mathematics (Table 2) are related to the view that mathematics is a conceptual tool for constructing and reconstructing mathematics learning materials in the form of mental activities that shape the flow of thinking and the flow of understanding that can develop skills.

**Table 2.** Elements of Mathematical Processes

Element	Description
Mathematical reasoning and proof	The reasoning is related to the process of using relationship patterns in analyzing situations to compile and investigate presumptions. Mathematical proof is associated with proving the truth of a specific principle, formula or theorem.
Mathematical Problem Solving	Mathematical problem solving is related to solving mathematical or everyday problems by implementing and adapting various effective strategies. This process also includes the construction and reconstruction of mathematical understanding through problem solving.
Communication	Mathematical communication is related to forming a flow of understanding of mathematical learning material through communicating mathematical thoughts using appropriate mathematical language. Mathematical communication also includes the process of analyzing and evaluating the mathematical thinking of others.
Mathematical Representation	Mathematical representations are related to creating and using symbols, tables, diagrams or other forms to communicate mathematical ideas and models. This process also includes flexibility in changing from one form of representation to another and selecting the most appropriate phrase to solve the problem.
Mathematical Connection	Mathematical connection is related to linking mathematics learning material in a field of study, areas of science, and life.

### 3.2 Discussion

Based on the results of research on the implementation of the independent curriculum at SD Negeri Palumbonsari I, it was found that the performance of the independent curriculum (IKM) began in the 2022-2023 school year which was carried out in classes I and IV so that it was not even one semester yet. This school also uses three curricula: the independent curriculum for grades I and IV, the PSP curriculum for grades II and V, and the 2013 curriculum for grades III and VI. There is no difference between the independent curriculum and the curriculum used by the driving school; the independent curriculum perfects the learning outcomes of the driving school. The independent curriculum is different from the 2013 curriculum in that learning planning does not use lesson plans (RPP) but teaching modules. The independent curriculum allows teachers to choose, create, and develop learning tools freely. Components in the RPP consist of core competencies, essential competencies, indicators, learning objectives, subject matter, learning methods, learning activities, learning resources and media, and assessment of learning processes and outcomes. At the same time, the components in the teaching module consist of module identity, core components, which include learning outcomes, learning achievement indicators, and learning activity objectives; subject matter; Pancasila student profiles; approaches, methods, and learning models; learning modes, target students; media and learning resources; trigger questions; learning activities; reflection; assessment; remedial; and enrichment. In the teaching module there is an attachment to student worksheets.



The independent curriculum does not have core competencies but instead uses learning outcomes that will be achieved over two years, consisting of three phases in elementary school. Phase A for classes I and II, Phase B for class III and IV, and Phase C for class V and VI. Learning outcomes in mathematics consist of content elements of numbers, algebra, measurement, geometry, data analysis and probability. The difference between each phase, for example, is the number element. Phase A performs addition and subtraction operations using up to 20 concrete objects. Phase B performs addition and subtraction of up to 1,000 and multiplication and division of whole numbers up to 100 using tangible objects, pictures and mathematical symbols. In phase C, it performs addition, subtraction, multiplication and division operations to count up to 100,000. The subject's process elements include mathematical reasoning and proof, mathematical problem-solving, communication, mathematical representation, and mathematical connections.

Learning in the independent curriculum uses differentiated learning. Through this differentiated learning, children will be mapped based on their abilities, providing various ways to get content, develop ideas, and optimize learning work and assessment measures so that all children in a classroom with diverse skills can learn daily [10]. Differentiated learning consists of three aspects that can be distinguished by teachers so that students can understand the subject matter they are studying, namely elements of the content to be taught, aspects of processes or meaningful activities that students in the class will carry out, and the third aspect is assessment. in the form of making products that are carried out at the end which can measure the achievement of learning objectives.

The learning load in the independent curriculum is intended for intracurricular learning and projects to strengthen the Pancasila student profile. The time allocation for project activities to enhance the achievement of Pancasila student profiles is used more flexibly than intra-curricular learning because the project to improve Pancasila student profiles is not a weekly routine. The shape of Pancasila students consists of six dimensions: having faith, fearing God Almighty, having noble character, being independent, working together, having global diversity, critical thinking, and being creative.

## 4 Conclusion

This study concludes that the curriculum first changes from the 2013 curriculum to the driving school program curriculum in the 2021-2022 school year and the 2022-2023 school year to become an independent curriculum. The two learning plans in the independent curriculum do not use Learning Implementation Plans (RPP) but use teaching modules. The three learning outcomes are divided into phase A for grades I and II, phase B for grades III and IV, and phase C for grades V and VI where each learning outcome is for two years. The four lessons in the independent curriculum apply differentiated learning. The five hours of classes have included Pancasila student profile activities. The independent curriculum began to be implemented at the beginning of the 2021–2022 school year so that it was only one semester running, its implementation

was implemented in grades I and IV so the performance of the independent curriculum in elementary schools was not optimal.

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