

IMPLEMENTATION OF THE KURIKULUM MERDEKA IN NATURAL AND SOCIAL SCIENCE LEARNING TO STRENGTHEN ELEMENTARY STUDENTS' INDEPENDENCE

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ABSTRACT

The school curriculum in Indonesia is constantly changing. It is currently a transitional period between the 2013 curriculum and the Kurikulum Merdeka. This study aims to analyze the implementation of the Kurikulum Merdeka in science learning to strengthen the learning independence of grade 4 elementary students. This research used a descriptive qualitative approach. The subjects in this study were the grade 4 teacher and students at Muhammadiyah Elementary School (MES) Kadisoka Yogyakarta. The data collection techniques used were interviews, observation, and documentation. The data analysis technique in this study used the data condensation, data display, and conclusion. The results of this study indicate that MES Kadisoka uses the Kurikulum Merdeka, but it has not been implemented in all classes, only in grade 1 and grade 4, whereas other classes are still implementing the 2013 Curriculum; Science learning seeks to provide understanding to students of how to identify various problems and find solutions to achieve a sustainable learning goal of training students' independence. Natural and social sciences aim to train students to think critically, have high curiosity, and try to realize the Project of Pancasila Student Profile Strengthening (PPSPS) in the Kurikulum Merdeka; The teacher's role in science learning is not only teaching and educating but also being a facilitator and evaluator, providing guidance, and encouraging creativity to maximize students' abilities.

Keywords: elementary school; Kurikulum Merdeka; science learning

INTRODUCTION

Education is an aspect that has a vital role in developing intelligent human resources through equity, expansion, and better access to quality education services.¹ The social structure rapidly transforms during the industrial revolution 4.0 and society 5.0.² Appropriateness in the use of technology can produce education with global competitiveness^{3,4} where human resources will be educated to have skills in collaborating, communicating, thinking critically, and being innovative and creative. The state must-

¹ Muhammad Rusli Baharuddin, "Adaptasi Kurikulum Merdeka Belajar Kampus Merdeka (Fokus: Model MBKM Program Studi)," *Jurnal Studi Guru Dan Pembelajaran* 4, no. 1 (April 22, 2021): 195, <https://doi.org/10.30605/jsgp.4.1.2021.591>.

² Supriyoko dkk., "Online Survey: Evaluation of Indonesian Higher Education Curriculum," *Pegegog Journal of Education and Instruction* 12, no. 4 (11 Oktober 2022): 235, <https://doi.org/10.47750/pegegog.12.04.24>.



regulate policy tools or instruments as a footing or legal basis to create quality education³. A curriculum is one of the critical elements that must exist and be implemented in an educational unit or institution.⁴

Entering the era of globalization, especially in the development of science and technology, the government conveyed the concept of “Independent Learning Education” in a speech by the Minister of Education and Culture, Nadiem Anwar Makarim, at the 2019 National Teacher's Day event. It is known that this concept is part of the efforts to improve the quality of education. This concept must be flexible towards freedom and self-disclosure as an educational institution and play a fundamental role and contribute to human welfare, especially in the industrial revolution 4.0 and society 5.0.⁵ *Merdeka Belajar* is a new policy program. Conceptually, this Kurikulum Merdeka allows institutions and students to carry out their own learning process.⁶ The concept of *Merdeka Belajar* (Freedom to Learn) in the style of Nadiem Makarim is motivated by his desire to create a pleasant learning atmosphere without being burdened with achieving a specific score or grade. The other part of the Kurikulum Merdeka is the PPSPS or abbreviated as PPSPS . Changes in the curriculum make the system and its application change, as is the case with the materials usually integrated into one when using the 2013 curriculum, such as Cultural Arts and Crafts, Mathematics, Natural Sciences, Social Sciences, Indonesian, and Civics. The authors argue that text structure instruction deserves a place in the primary school curriculum so the positive effects on reading will be maintained.^{7,8}

³ L.J. Meltzer, “Changing school start times: Impact on sleep in primary and secondary school students,” *Sleep* 44, no. 7 (2021), <https://doi.org/10.1093/sleep/zsab048>.

⁴ Tuti Marlina, “Urgensi Dan Implikasi Pelaksanaan Kurikulum Merdeka Pada Sekolah Dasar/Madrasah Ibtidaiyah,” *Prosiding Seminar Nasional Pendidikan Ekonomi* 1, no. 1 (June 15, 2022): 69.

⁵ Abdul Kholik dkk., “Impelementasi Kurikulum Merdeka Belajar Kampus Merdeka (MBKM) Berdasarkan Persepsi Dosen Dan Mahasiswa,” *Jurnal Basicedu* 6, no. 1 (6 Januari 2022): 739, <https://doi.org/10.31004/basicedu.v6i1.2045>.

⁶ Ina Rohiyatussakinah, “Implementation of MBKM and the Relationship of Curriculum Policy Based on a Case of EFL Education in Japan,” *Journal of English Language Teaching and Literature (JELTL)* 4, no. 2 (28 Agustus 2021): 39, <https://doi.org/10.47080/jeltl.v4i2.1434>.

⁷ S.T.M. Bogaerds-Hazenbergh, “A Meta-Analysis on the Effects of Text Structure Instruction on Reading Comprehension in the Upper Elementary Grades,” *Reading Research Quarterly* 56, no. 3 (2021): 435–62, <https://doi.org/10.1002/rrq.311>.

⁸ Nurul Saadah Agustina et al., “Analisis Pedagogical Content Knowledge Terhadap Buku Guru IPAS Pada Muatan IPA Sekolah Dasar Kurikulum Merdeka,” *Jurnal Basicedu* 6, no. 5 (September 3, 2022): 9184, <https://doi.org/10.31004/basicedu.v6i5.3662>.

Education at the elementary school level is the initial stage in forming students' basic knowledge and skills⁹. In the elementary school curriculum, there are two highly important subjects: natural sciences and social sciences¹⁰. Based on an analysis of field observation, these two subjects are often taught separately, thus hindering the development of students' independence in learning. One of the problems is the lack of connection between natural sciences and social sciences. In everyday life, many natural phenomena influence social life and vice versa. However, with separate learning, students find it difficult to see the connection between these two fields¹¹. For example, in studying topics about ecosystems, students may not realize how a healthy ecosystem can influence people's social lives¹². This can hinder students' holistic understanding of the world around them. At the elementary school level, there are some differences in how the Kurikulum Merdeka is implemented in school subjects, such as merging natural and social sciences into one subject (natural and social sciences). Combining natural sciences and social sciences or natural social sciences is expected to encourage children to manage the natural and social environments in one unit.¹³

There are some previous studies related to the Kurikulum Merdeka and natural and social science learning, such as the readiness of science education study programs in implementing the Kurikulum Merdeka,¹⁴ analysis of pedagogical content knowledge towards the science teacher's book on the Kurikulum Merdeka of elementary school science content,¹⁵ the implementation of the Kurikulum Merdeka based on students'

⁹ D.H. Bailey, "Achievement Gaps in the Wake of COVID-19," *Educational Researcher* 50, no. 5 (2021): 266–75, <https://doi.org/10.3102/0013189X211011237>.

¹⁰ Y. Wahyu, "The effectiveness of mobile augmented reality assisted STEM-based learning on scientific literacy and students' achievement," *International Journal of Instruction* 13, no. 3 (2020): 343–56, <https://doi.org/10.29333/iji.2020.13324a>.

¹¹ C.M. Cunningham, "The impact of engineering curriculum design principles on elementary students' engineering and science learning," *Journal of Research in Science Teaching* 57, no. 3 (2020): 423–53, <https://doi.org/10.1002/tea.21601>.

¹² S. Graham, "The Effects of Writing on Learning in Science, Social Studies, and Mathematics: A Meta-Analysis," *Review of Educational Research* 90, no. 2 (2020): 179–226, <https://doi.org/10.3102/0034654320914744>.

¹³ Anita Ekantini dan Ika Damayanti, "Exploring Students' Views On The Application Of Kurikulum Merdeka For Elementary School In Natural Science Subject," *AULADUNA: Jurnal Pendidikan Dasar Islam* 10, no. 1 (8 Juni 2023): 3–4, <https://doi.org/10.24252/auladuna.v10i1a1.2023>.

¹⁴ Zakiiyah Zakiiyah, Mutiara Dwi Cahyani, dan Nurwanti Fatnah, "Readiness of the Science Education Study Program in the Implementation of the 'Merdeka Belajar - Kampus Merdeka' (MBKM) Curriculum," *Scientiae Educatia: Jurnal Pendidikan Sains* 10, no. 2 (31 Desember 2021): 165, <https://doi.org/10.24235/sc.educatia.v10i2.9243>.

¹⁵ Nurul Saadah Agustina dkk., "Analisis Pedagogical Content Knowledge Terhadap Buku Guru IPAS Pada Muatan IPA Sekolah Dasar Kurikulum Merdeka," *Jurnal Basicedu* 6, no. 5 (3 September 2022): 9184, <https://doi.org/10.31004/basicedu.v6i5.3662>.

perceptions,¹⁶ the application of a critical review of the 2013 science teacher's book curriculum,¹⁷ assessment instruments of science process skills performance,¹⁸ problem-solving skills of science student,¹⁹ and integration of formative assessment in science learning.²⁰

This research is different from previous research in terms of the subject and object, where the subject is elementary school students and the object is students' independence. The novelty of this research is about analyzing the implementation of the Kurikulum Merdeka in science learning in an elementary school. In implementing the independent learning process, learning has a meaning and implications for teachers and students²¹. In some literature, the meaning of independent learning in the learning process is independence in thinking, innovation, and independent and creative learning.²² The teacher can apply the concept of independence in thinking by becoming a study partner for students. As a study partner, the teacher designs fun learning to encourage students to be self-aware and independent in their learning choices.²³ The concept of independence in innovation in the Kurikulum Merdeka can be developed by applying innovative-based learning models.²⁴ Meanwhile, Knowles in Fisher defines independent and creative

¹⁶ Putri Ulfa Kamalia dan Eka Hendi Andriansyah, "Independent Learning-Independent Campus (MBKM) in Students' Perception," *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran* 7, no. 4 (11 Desember 2021): 862–64, <https://doi.org/10.33394/jk.v7i4.4031>.

¹⁷ M. Khusniati dan S. D. Pamelasari, "Penerapan Critical Review Terhadap Buku Guru Ipa Kurikulum 2013 Untuk Mengembangkan Kemampuan Mahasiswa Dalam Menyusun Perangkat Pembelajaran Berpendekatan Saintifik," *Jurnal Pendidikan IPA Indonesia* 3, no. 2 (2014): 176, <https://doi.org/10.15294/jpii.v3i2.3117>.

¹⁸ Supahar dkk., "The Instrument for Assessing the Performance of Science Process Skills Based on Nature of Science (NOS)," *Jurnal Cakrawala Pendidikan* 36, no. 3 (28 Oktober 2017): 444, <https://doi.org/10.21831/cp.v36i3.14731>.

¹⁹ T. Nurita, P. W. Hastuti, dan D. a. P. Sari, "Problem-Solving Ability of Science Students in Optical Wave Courses," *Jurnal Pendidikan IPA Indonesia* 6, no. 2 (17 Oktober 2017): 344, <https://doi.org/10.15294/jpii.v6i2.8184>.

²⁰ Intan Puspita Sari, Vita Ria Mustikasari, dan Novida Pratiwi, "Pengintegrasian Penilaian Formatif Dalam Pembelajaran IPA Berbasis Saintifik Terhadap Pemahaman Konsep Peserta Didik," *JIPVA (Jurnal Pendidikan IPA Veteran)* 3, no. 1 (1 Mei 2019): 60, <https://doi.org/10.31331/jipva.v3i1.778>.

²¹ C.A. Kearney, "A Multidimensional, Multi-tiered System of Supports Model to Promote School Attendance and Address School Absenteeism," *Clinical Child and Family Psychology Review* 23, no. 3 (2020): 316–37, <https://doi.org/10.1007/s10567-020-00317-1>.

²² Agustinus Tanggu Daga, "Makna Merdeka Belajar dan Penguatan Peran Guru di Sekolah Dasar," *Jurnal Educatio* 7, no. 3 (2021): 1075, <https://doi.org/10.31949/educatio.v7i3.1279>.

²³ Diah Fitrotul Auliana dkk., "The Influence Of Interactional Teaching Style On The Independence Characters Of Elementary School Students," *Al-Bidayah : Jurnal Pendidikan Dasar Islam* 12, no. 2 (2020): 160, <https://doi.org/10.14421/al-bidayah.v12i2.576>.

²⁴ Abdul Rahman Tibahary dan Muliana Muliana, "Model-Model Pembelajaran Inovatif," *Scolae: Journal of Pedagogy* 1, no. 1 (6 Agustus 2018): 55, <https://doi.org/10.56488/scolae.v1i1.12>.

learning as a process in which students take the initiative, with or without the help of others, to diagnose their learning needs, learning goals, and learning materials, choose and use appropriate learning strategies or methods, evaluate their learning outcomes, and look for relevant information to solve problems.²⁵

Based on such explanation, students' independence is essential to the Kurikulum Merdeka. The indicators of students' learning independence, according to Gea and Desmita, are having confidence, being able to work alone, carrying out instructions properly, being responsible, and being able to make their own decisions.²⁶ The results of other studies show that each student's level of learning independence can affect learning outcomes.²⁷ One of the subjects to develop independent character education is natural and social sciences. Natural and social sciences can help students concretely develop their curiosity about the phenomena around them.²⁸ This curiosity can encourage students to understand how the universe works and interacts with human life. It follows the character of students at the lower grade level in which students understand tangible things more easily²⁹.

This understanding can be used to identify the problems faced and find solutions to achieve sustainable learning goals to train students' independence³⁰. The indicators or fundamental principles of scientific methodology in science learning will train scientific attitudes (high curiosity, critical thinking skills, analytical skills, and ability to draw the

²⁵ Tri Yudha Setiawan, Destrinelli Destrinelli, dan Bunga Ayu Wulandari, "Keterampilan Berfikir Kritis Pada Pembelajaran IPA Menggunakan Model Pembelajaran Radec di Sekolah Dasar : Systematic Literature Review," *Justek : Jurnal Sains dan Teknologi* 5, no. 2 (3 November 2022): 135, <https://doi.org/10.31764/justek.v5i2.11421>.

²⁶ Katarina Wege, Aloisius Harso, dan Daniel Wolo, "Analysis of Student Learning Independence during the Pandemic," *Journal of Research in Instructional* 2, no. 1 (30 Juni 2022): 93–94, <https://doi.org/10.30862/jri.v2i1.34>.

²⁷ Moh Khozi Eriyanto dkk., "The Effect of Learning Motivation on Learning Independence and Learning Outcomes of Students in the Package C Equivalence Program," *IJORER : International Journal of Recent Educational Research* 2, no. 4 (2021): 464, <https://journal.ia-education.com/index.php/ijorer/article/view/122>.

²⁸ Ayu Sri Wahyuni, "Literature Review: Pendekatan Berdiferensiasi Dalam Pembelajaran IPA," *Jurnal Pendidikan MIPA* 12, no. 2 (June 7, 2022): 118, <https://doi.org/10.37630/jpm.v12i2.562>.

²⁹ A. Heyder, "Teachers' belief that math requires innate ability predicts lower intrinsic motivation among low-achieving students," *Learning and Instruction* 65, no. Query date: 2024-03-18 23:04:58 (2020), <https://doi.org/10.1016/j.learninstruc.2019.101220>.

³⁰ A. Kundu, "Time to engage: Implementing math and literacy blended learning routines in an Indian elementary classroom," *Education and Information Technologies* 26, no. 1 (2021): 1201–20, <https://doi.org/10.1007/s10639-020-10306-0>.

correct conclusions) that give birth to wisdom in students.³¹ Therefore, the main focus of learning natural and social sciences in elementary schools is not on how much students can absorb material but on how much competence students have in utilizing their knowledge.³² The problem in this research is how to implement the independent learning policy in natural and social science learning, in which science is a combination of subjects expected to encourage children to manage natural and social environments in one unit. This study aims to analyze the implementation of the Kurikulum Merdeka in natural and social science learning to strengthen the learning independence of grade 4 students. Through the knowledge and understanding the students receive, the teacher will become better at implementing and designing learning to achieve the expected learning outcomes³³. From this gap analysis, this study discusses the analysis of the implementation of the Kurikulum Merdeka in natural and social science learning in an elementary school.

RESEARCH METHODS

This research used a descriptive qualitative approach.³⁴ This approach makes building a firm understanding of a topic possible, unraveling the meaning people perceive in their lives, activities, situations, circumstances, people, and objects. The subjects in this study were a grade 4 teacher and 27 grade 4 students of MES Kadisoka Yogyakarta. This research was conducted at MES Kadisoka Yogyakarta from 2 to 16 December 2022. The data collection methods were interviews, documentation, and observation.³⁵ The interview was conducted with the grade 4 teacher who is also the assistant principal of the curriculum of MES Kadisoka Yogyakarta to gather information related to the implementation of the Kurikulum Merdeka in natural and social science learning.

³¹ Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia, "Panduan Pembelajaran dan Asesmen Pendidikan Anak Usia Dini, Pendidikan Dasar, dan Menengah" (2022).

³² Erni Munastiwi dkk., "Effect Of Creative Independence Problem Solving (Cips)-Based Training Module On Professionalism Of Rural Indonesian Elementary School Teachers," *Al-Bidayah: Jurnal Pendidikan Dasar Islam* 13, no. 1 (26 Juli 2021): 49, <https://doi.org/10.14421/al-bidayah.v13i1.616>.

³³ N.K. Nathan, "Implementation of a school physical activity policy improves student physical activity levels: Outcomes of a cluster-randomized controlled trial," *Journal of Physical Activity and Health* 17, no. 10 (2020): 1009–18, <https://doi.org/10.1123/jpah.2019-0595>.

³⁴ Patricia Leavy, *Research Design: Quantitative, Qualitative, Mixed Methods, Arts-Based, and Community-Based Participatory Research Approaches*, First Edition (New York: The Guilford Press, 2017), 302, <https://www.amazon.com/Research-Design-Quantitative-Community-Based-Participatory/dp/1462514383>.

³⁵ R. Burke Johnson dan Larry Christensen, *Educational Research: Quantitative, Qualitative, and Mixed Approaches 5th Edition* (California: SAGE Publications, 2014), 90.

The interview instrument was about the learning process in the Kurikulum Merdeka in grade 4. The following is an interview instrument used to obtain information regarding the implementation of the Kurikulum Merdeka in natural and social science learning to strengthen elementary students' independence.

Table 1
Instrument of interview with the teacher at MES Kadisoka Yogyakarta

Indicator	Interview Instrument
Kurikulum Merdeka implementation	What must be prepared when implementing the Kurikulum Merdeka? Has the school fully used the Kurikulum Merdeka? Is the Kurikulum Merdeka applied at all grade levels?
Natural and social science learning in the Kurikulum Merdeka	What are the aims of learning natural and social sciences at school? What are the principles of learning natural and social sciences per se? What kind of learning outcomes are expected in natural and social science learning?
Natural and social science learning to increase the independence of grade 4 students in the Kurikulum Merdeka	Have grade 4 students studied natural and social science lessons? Can learning natural and social sciences foster students' learning independence? What is learned in grade 4 natural and social science learning?

Source : Personal Documents

The documentation method was used to find data regarding the implementation of the Kurikulum Merdeka in natural and social science learning in notes, transcripts, letters, books, and others. The researchers used the observation method to find out how learning activities in the Kurikulum Merdeka affect science and social studies learning in grade 4 of MES Kadisoka Yogyakarta and observed the learning independence of grade 4 students in natural and social science learning. There were 27 grade 4 students. Table 1 describes the indicators of learning independence in grade 4 students at MES Kadisoka in natural and social science learning and the number of students with learning independence. The data were obtained through observation sheets of students' learning independence.

Table 2
Learning Independence of Grade 4 Students of MES Kadisoka

No.	Indicator	Description
1	Being confident	v
2	Being able to work herself/himself	v
3	Doing instructions properly	v
4	Being responsible	v
5	Being able to make decisions	v

Source : Personal Documents

The data analysis in this study used the theory of Miles, Huberman, and Saldana: data condensation, data display, and conclusion.³⁶ Data condensation refers to selecting, focusing, simplifying, abstracting, and transforming data obtained from field data, which is later sorted to obtain the research focus that the researchers need. Data display is an effort to organize, unify, and obtain data to be concluded. The next is concluding. After the data obtained in the field has been condensed and presented, the next is to conclude the analysis of the comprehensive data.

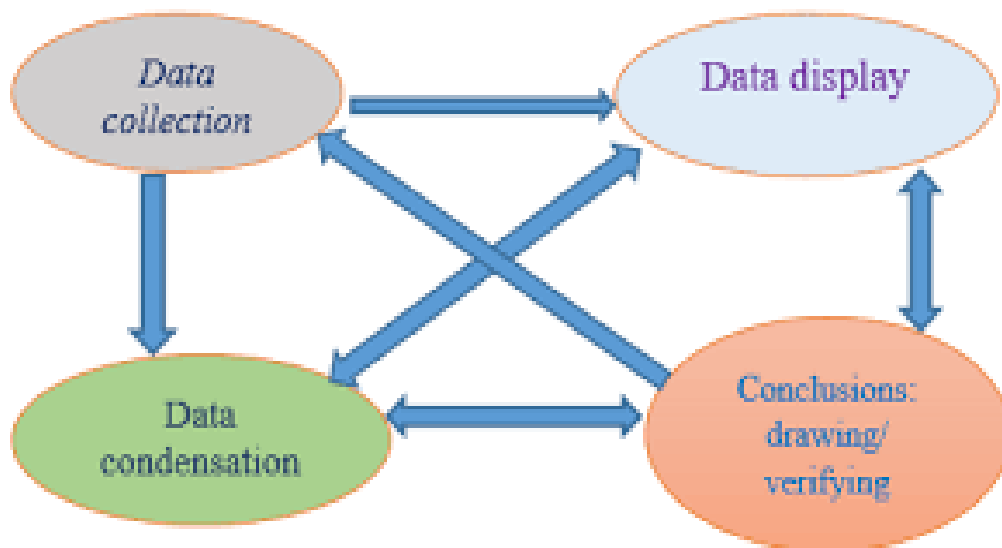


Figure 1
Data Analysis Techniques proposed by Miles, Huberman, and Saldana
Source :³⁷

³⁶ Matthew B. Miles, A. Michael Huberman, dan Johnny Saldana, *Qualitative Data Analysis: A Methods Sourcebook* (New York: SAGE Publications, 2018), 45.

³⁷ Matthew B. Miles, A. Michael Huberman, dan Johnny Saldana, *Qualitative Data Analysis: A Methods Sourcebook* (New York: SAGE Publications, 2018), 45

RESULTS AND DISCUSSION

The Kurikulum Merdeka will be a substitute for the 2013 curriculum, which is still widely used by several schools. This Kurikulum Merdeka has several new terms, including the PPSPS. The goal of PPSPS, in general, is to produce competent graduates with behavior that follows Pancasila values at every level of education. PPSPS also aims to provide additional knowledge and skills from the environment around students. The following are the research results from the interviews, observation, and documentation related to the implementation of the Kurikulum Merdeka in science learning at MES Kadisoka. Based on the interviews conducted with the grade 4 teacher at MES Kadisoka, it was found that in implementing the Kurikulum Merdeka, the school must understand the concept map of Kurikulum Merdeka implementation. They must understand the outline, learning and assessment, development of educational unit operational curricula, and development of projects to strengthen the profile of Pancasila students in the Kurikulum Merdeka. MES Kadisoka has not fully implemented the Kurikulum Merdeka. However, they still use the 2013 curriculum and include PPSPS in the Kurikulum Merdeka. In the data input in offices related to the Kurikulum Merdeka, three options are available: independent learning, independent change, and independent sharing. MES Kadisoka has chosen the Kurikulum Merdeka. Therefore, MES Kadisoka has started switching from the 2013 curriculum to the Kurikulum Merdeka.

The results of interviews related to the implementation of the Kurikulum Merdeka for natural and social science learning showed that the Kurikulum Merdeka at MES Kadisoka was implemented in grade 1 and grade 4. Before using the Kurikulum Merdeka, the learning between natural science, social science, and other subjects was still integrated into one teaching material within a theme. However, the Kurikulum Merdeka combines natural and social science into one science subject. The combination of these subjects aims to encourage students to manage natural and social environments in one unit. In designing learning activities in the Kurikulum Merdeka, the teachers at MES Kadisoka must understand the guidelines for designing learning activities that the government has exemplified. The stages are the teacher understands the learning outcomes, the teacher

formulates the expected learning objectives, the teacher arranges the flow of learning objectives, and the teacher starts designing learning.³⁸

The grade 4 teacher at the time of the interview also revealed that the goals of learning natural and social sciences at grade 4 of MES Kadisoka were the same as those of grades 2, 3, and others. It aims to realize PPSPS in the Kurikulum Merdeka. Natural and social science learning encourages students to hone their curiosity about various events around them. The principle of natural and social science learning is to train students to think critically and be curious. Natural and social science learning can encourage independent learning for grade 4 students, whereas it seeks to provide students with opportunities to explore, investigate, and develop an understanding of the environment around them³⁹. Therefore, studying natural phenomena and human interaction with the nature and between humans is very important. These various learning activities can make students more independent in learning. As for the results of observation using the students' learning independence sheet, information was obtained regarding the percentage of learning independence of grade 4 students.

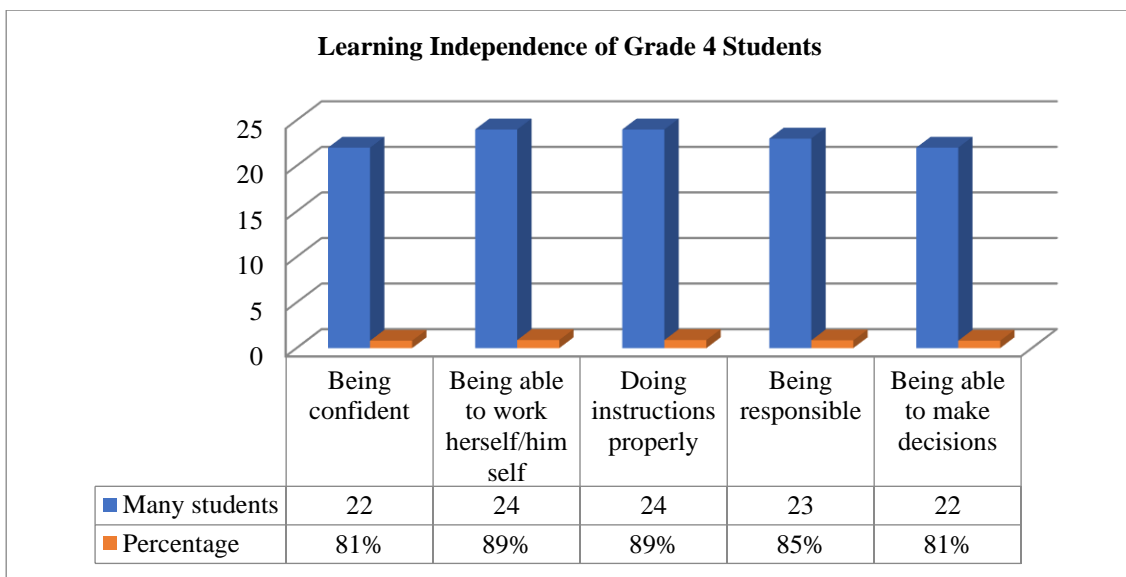


Figure 2
Percentage of Learning Independence of Grade 4 Students at
MES Kadisoka

Source : Personal Documents

³⁸ E. García-González, "Approaches to teaching and learning for sustainability: Characterizing students' perceptions," *Journal of Cleaner Production* 274, no. Query date: 2024-03-20 02:32:39 (2020), <https://doi.org/10.1016/j.jclepro.2020.122928>.

³⁹ B. Jayson Andrey, "Challenges and trends of the 21st century in higher education," *Revista de Ciencias Sociales* 26, no. 2 (2020): 141–54, <https://doi.org/10.31876/rcs.v26i0.34119>.

Based on the observation results to determine the learning independence of grade 4 students, there were 81% or 22 students with self-confidence, 89% or 24 students who could work alone or do their work, 89% or 24 students who could carry out instructions properly, 85% or 23 students with an attitude of responsibility, and 81% or 22 students who could make their own decisions. Based on the results, grade 4 students have good learning independence. From the percentage, grade 4 students had learning independence, with an average of 85% or 23 students.

Grade 4 students' learning outcomes expected by the teacher for natural and social science learning at MES Kadisoka are the same as those determined by the government. For example, students can determine questions about their conditions in the home and school environment, students can identify simple problems related to everyday life, students can optimize the use of their five senses, recognize the parts of the human body, and explain their functions and how to care for them properly, students can distinguish between animals and plants according to their shapes and general characteristics, students can describe the family tree, roles, and responsibilities as family/group/school members, and students can distinguish healthy and unhealthy environments, reflect healthy living behaviors, and participate in maintaining the cleanliness of the home and school environment.

The research results are also related to the learning process in Natural Sciences and Social Sciences. In learning Natural Sciences and Social Sciences, students of grade 4 are in Phase B, where they identify the relationship between the knowledge they have just acquired and find out how the concepts of Natural and Social Sciences relate to each other in the surrounding environment in daily life. Students' mastery of the material being studied is demonstrated by solving the challenges faced in everyday life. Next, students propose ideas/reasons, carry out investigations/ experiments, communicate, conclude, reflect, apply, and follow up on the inquiry process they have carried out.

The teacher's assessment of grade 4 students' learning outcomes in science learning is carried out following the evaluation process in the Kurikulum Merdeka by strengthening formative assessments and using the results of assessments to design learning according to students' achievement stages, and strengthening the implementation of authentic assessments, especially in the project to strengthen the students' Pancasila profile. There is no separation between the assessment of attitudes, knowledge, and skills.

Meanwhile, the teacher practices several formative assessments, including observations, questions and answers, brief descriptions, brief summaries, examples, problem-solving, concept maps, and demonstration exercises.

Table 3
Results of the Interpretation of Interviews with the Research Respondents

Indicator	Interview Results
Kurikulum Merdeka implementation	<ol style="list-style-type: none"> 1. In implementing the Kurikulum Merdeka, schools must understand the concept map of the implementation of the Kurikulum Merdeka. 2. MES Kadisoka uses then Kurikulum Merdeka, but it has not been implemented in all classes, only in grades 1 and 4, while other classes are still implementing the 2013 Curriculum. 3. The Kurikulum Merdeka at MES Kadisoka has been implemented in grade 4.
Natural and social science learning in the Kurikulum Merdeka	<ol style="list-style-type: none"> 1. Natural and social science learning at MES Kadisoka grade 4 aims to realize PPSPS in the Kurikulum Merdeka. 2. The principle of natural and social science learning is to train students to think critically and be curious. 3. The learning outcomes expected by the teacher for grade 4 at MES Kadisoka are the same as those determined by the government.
Natural and social science learning in increasing the independence of grade 4 students in the Kurikulum Merdeka	<ol style="list-style-type: none"> 1. The learning process for Natural and Social Sciences subjects for grade 4 students is in Phase B. 2. Science learning can encourage an attitude of self-reliance in grade 4 students' learning, where students can explore, investigate, and develop an understanding of the environment around them. 3. The students study natural phenomena, human interaction with the nature and between humans, and various learning activities that can make students more independent.

Source : Personal Documents

The Ministry of Education and Culture provide details of the differences between the 2013 Curriculum and the Kurikulum Merdeka at each level of education. This difference can be seen based on the basic framework of the curriculum, the intended competencies, curriculum structure, learning, assessment, teaching tools provided by the government, and the respective curriculum tools. The Kurikulum Merdeka was introduced as one of the options that schools can choose voluntarily for the 2022-2023 academic year. This curriculum focuses on essential materials and character development

of the Pancasila student profile. The implementation of the Kurikulum Merdeka can be adjusted to each school's needs and readiness level ⁴⁰. The Kurikulum Merdeka is designed to provide flexibility for educational units to create an operational curriculum for contextual educational units to implement learning according to students' learning needs. The following is the difference between the 2013 curriculum and the Kurikulum Merdeka.

There are differences between the 2013 curriculum and the Kurikulum Merdeka. Among them lies the basic framework of the curriculum, where the two curricula are based on the goals of the national education system and national education standards. However, the Kurikulum Merdeka adds the Development of PPSPS. The next difference lies in the intended competencies. In the 2013 curriculum, the intended competencies are the basic competencies in the form of scope and sequence, which are grouped into the four Core Competencies: spiritual attitudes, social attitudes, knowledge, and skills. The intended competencies of the Kurikulum Merdeka lie in the learning outcomes expressed in paragraphs that organize knowledge, attitudes, and skills to achieve, strengthen, and improve competence. The curriculum structure in the 2013 curriculum is where study hours are set per week, while for the Kurikulum Merdeka, the study hours are set per year. The learning process in the Kurikulum Merdeka can be done anywhere and anytime, according to the teachers' and students' needs and abilities. In comparison, the 2013 curriculum prioritizes learning activities in class. Assessment in the 2013 Curriculum is based on aspects of knowledge, aspects of skills, aspects of attitudes, and aspects of behavior. Meanwhile, the Kurikulum Merdeka prioritizes strengthening the Pancasila Student Profile as well as intracurricular and extracurricular activities.

In implementing the Kurikulum Merdeka, schools must first understand the concept map of the implementation of the Kurikulum Merdeka. It follows the guidelines that the Ministry of Education and Culture have issued in the learning guides and assessments for early childhood, primary, and secondary education, which contain

⁴⁰ D.E. DeMatthews, "Leading Inclusive Schools: Principal Perceptions, Practices, and Challenges to Meaningful Change," *Educational Administration Quarterly* 57, no. 1 (2021): 3–48, <https://doi.org/10.1177/0013161X20913897>.

content maps in implementing the Kurikulum Merdeka.⁴¹ The following is the content map for understanding the implementation of the Kurikulum Merdeka.

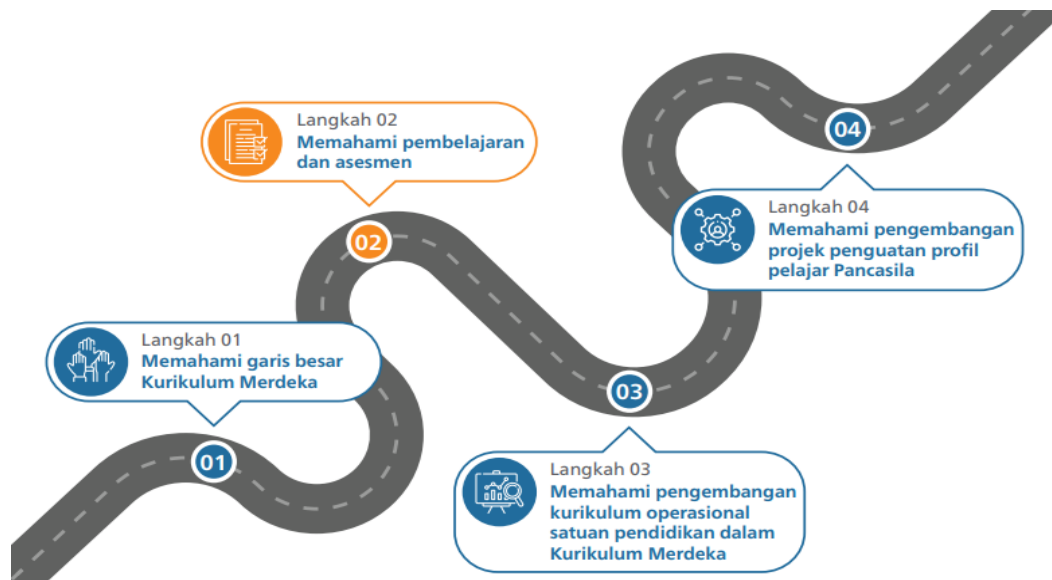


Figure 3

Content Map in Understanding the Implementation of the Kurikulum Merdeka

Source :⁴²

Based on Figure 3, four steps must be understood in implementing the Kurikulum Merdeka in schools. The first step is to understand the outline of the Kurikulum Merdeka, which contains regulations regarding the applicable Kurikulum Merdeka and academic studies of the curriculum for recovery. The second step is to understand learning and assessment. In addition, learning and assessment guides include principles of learning and assessment, learning according to the stages of students, learning planning and assessment (including the flow of learning objectives), learning planning, processing, and reporting of assessment results. The third step is to understand the development of the operational curriculum of the educational unit in the Kurikulum Merdeka. Furthermore, the guidelines for developing the educational unit's operational curriculum include analysis of the educational unit's characteristics, such as preparing the educational unit's vision, mission, and objectives, organizing learning, learning planning, mentoring, evaluation, and developing professionals. The fourth step is to understand the development of the PPSPS

⁴¹ Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia, Panduan Pembelajaran dan Asesmen Pendidikan Anak Usia Dini, Pendidikan Dasar, dan Menengah.

⁴² Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.

while the guidelines include preparing a school ecosystem, designing PPSPS, managing PPSPS, processing assessments, and reporting the results of PPSPS, evaluation, and follow-up of PPSPS.⁴³

Based on the research results, the Kurikulum Merdeka applied in schools must be innovative and implemented according to the needs of students. This is comparable to a statement from Maman Suryaman that from the learning development perspective, an innovative curriculum is a medium for transforming learners in developing problem-solving skills based on scientific methods and reflective thinking.⁴⁴ In implementing the Kurikulum Merdeka, MES Kadisoka only immediately applies it to grades 1 and 4 because the school needs to make adjustments to this Kurikulum Merdeka while the application of this curriculum is challenging. There needs to be dissemination so that schools understand what the Kurikulum Merdeka is. This is strengthened by Fitriyah and Wardani explaining that, based on interviews with several elementary school teachers, their view of the Kurikulum Merdeka is that this curriculum needs detailed dissemination.⁴⁵ The Kurikulum Merdeka at MES Kadisoka combines the 2013 curriculum with the Kurikulum Merdeka. The implementation of the Kurikulum Merdeka conducted by MES Kadisoka is almost the same as the research conducted by Sumarsih et al. regarding the implementation of the Kurikulum Merdeka in grades 1 and 4, while grades 2, 3, 5, and 6 still use the 2013 curriculum. However, the learning strategy follows the Kurikulum Merdeka, and the application of PPSPS is the same as in grades 1 and 4.⁴⁶

Students' independence is an essential aspect of the Kurikulum Merdeka. Science learning students not only study in the classroom to foster their independence but also outside the classroom to immediately unite with the nature.⁴⁷ Students need something

⁴³ Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.

⁴⁴ Maman Suryaman, "Orientasi Pengembangan Kurikulum Merdeka Belajar," dalam *Prosiding Seminar Daring Nasional: Pengembangan Kurikulum Merdeka Belajar Program Studi Pendidikan Bahasa Indonesia* (Seminar Nasional Pendidikan Bahasa dan Sastra, Bengkulu: UNB Press, 2020), 13–28, <https://ejournal.unib.ac.id/semiba/article/view/13357>.

⁴⁵ Chumi Zahroul Fitriyah dan Rizki Putri Wardani, "Paradigma Kurikulum Merdeka Bagi Guru Sekolah Dasar," *Scholaria: Jurnal Pendidikan Dan Kebudayaan* 12, no. 3 (29 September 2022): 240, <https://doi.org/10.24246/j.js.2022.v12.i3.p236-243>.

⁴⁶ Ineu Sumarsih dkk., "Analisis Implementasi Kurikulum Merdeka Di Sekolah Penggerak Sekolah Dasar," *Jurnal Basicedu* 6, no. 5 (2 Juli 2022): 8256, <https://doi.org/10.31004/basicedu.v6i5.3216>.

⁴⁷ Linda Indiyarti Putri, Nurwidiyanto Nurwidiyanto, dan Alfiana Rohmah, "The Development Of Fraction Textbook With The Ethnomathematics Approach For Third Grade Student Of Madrasah Ibtidaiyah," *Al-Bidayah : Jurnal Pendidikan Dasar Islam* 12, no. 2 (2020): 179, <https://doi.org/10.14421/al-bidayah.v12i2.535>.

that looks different from before. This is obtained from the role of educators in implementing this Kurikulum Merdeka, where the role of the teacher as an educator is highly influential in students' learning process to develop their abilities. This is in line with Marisa who states that students' potential can be developed not only from the learning process in the classroom but also from other learning environments, so the competencies intended for students are not individualistic.⁴⁸ However, they grow to practice independence with the surrounding learning environment.⁴⁹ According to Giwangsa and Novianti, students must have independence: having confidence, being able to work alone, carrying out instructions properly, being responsible, and making their own decisions. Therefore, it is necessary to have the learning that can form students' independence.⁵⁰

Among the subjects in the Kurikulum Merdeka that can shape students' independent character are natural and social science subjects. Grade 4 students have a high sense of curiosity, which can encourage them to learn how the universe works and interacts with human life. Science learning can encourage students' attitudes toward independent learning. Natural and social science learning provides opportunities for students to explore, investigate, and develop an understanding of the environment around them.⁵¹ This is following the character of students at the lower grade level, in which they understand tangible things better. This is in line with Wahyuni's statement that science is one of the subjects that can be used to develop independent character to help students concretely develop their curiosity about the phenomena that occur around them. It is necessary to evaluate and determine the extent to which students have independent character.⁵²

⁴⁸ Mira Marisa, "Inovasi Kurikulum 'Merdeka Belajar' Di Era Society 5.0," *Santhet : Jurnal Sejarah, Pendidikan, Dan Humaniora* 5, no. 1 (28 April 2021): 76.

⁴⁹ Marisa, 77.

⁵⁰ Sendi Giwangsa dan Pupung Novianti, "Implementasi Model Pembelajaran Ucing Sumput Untuk Pembentukan Karakter Kemandirian Dalam Pembelajaran IPS," *EduHumaniora | Jurnal Pendidikan Dasar Kampus Cibiru* 11, no. 2 (22 September 2019): 153, <https://doi.org/10.17509/eh.v11i2.13042>.

⁵¹ Kepala Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi, "Keputusan Kepala Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 008/H/KR/2022 Tentang Capaian Pembelajaran pada Pendidikan Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah pada Kurikulum Merdeka" (2022).

⁵² Ayu Sri Wahyuni, "Literature Review: Pendekatan Berdiferensiasi Dalam Pembelajaran IPA," *Jurnal Pendidikan MIPA* 12, no. 2 (June 7, 2022): 118-119, <https://doi.org/10.37630/jpm.v12i2.562>.

Meanwhile, in formal education, it is crucial to carry out an evaluation. With evaluation, the teacher knows the value of the meaning of his performance during the teaching and learning process and the importance of evaluating learning.⁵³ The Kurikulum Merdeka implemented at MES Kadisoka has not been fully used. The school still uses the 2013 curriculum, so they use authentic assessment for the realm of attitudes, knowledge, and skills. It has previously been explained that assessment in independent learning is directed at continuous assessment. Therefore, it can be agreed that the authentic assessment implemented in the 2013 curriculum is still relevant for integration with the program. An authentic assessment provides a broad way of assessing student development. The cognitive aspect is the main reference for assessment as well as the affective and psychomotor aspects.⁵⁴ Based on this, the teacher plays a vital role as an evaluator for students, so he can determine whether the learning objectives have been achieved.

The teacher's role is as an evaluator and facilitator, where the teacher must provide services to students in learning. The role of the teacher as a facilitator is to provide services, so students can quickly receive and understand the subject matter.⁵⁵ Therefore, the learning process will become more effective and efficient. The teacher must also be able to develop students' potential and provide valuable learning experiences for their students. Therefore, the teacher as an educator must provide students with direction, guidance, and motivation.⁵⁶ The teacher in the class has a role in teaching and managing the class.⁵⁷ The teacher's role is very influential in the teaching and learning process. The teacher is also required to have various abilities to improve the quality of education.

⁵³ Heroza Firdaus dkk., "Analisis Evaluasi Program Kurikulum 2013 Dan Kurikulum Merdeka," *Jurnal Pendidikan Dan Konseling (JPDK)* 4, no. 4 (8 Juli 2022): 691, <https://doi.org/10.31004/jpdk.v4i4.5302>.

⁵⁴ Wiku Aji Sugiri dan Sigit Priatmoko, "Perspektif Asesmen Autentik Sebagai Alat Evaluasi Dalam Merdeka Belajar," *At-Thullab : Jurnal Pendidikan Guru Madrasah Ibtidaiyah* 4, no. 1 (29 April 2020): 59, <https://doi.org/10.30736/atl.v4i1.119>.

⁵⁵ Dea Kiki Yestiani dan Nabila Zahwa, "Peran Guru Dalam Pembelajaran Pada Siswa Sekolah Dasar," *Fondatia: Jurnal Pendidikan Dasar* 4, no. 1 (30 Maret 2020): 41–47, <https://doi.org/10.36088/fondatia.v4i1.515>.

⁵⁶ Agustini Buchari, "Peran Guru Dalam Pengelolaan Pembelajaran," *Jurnal Ilmiah Iqra'* 12, no. 2 (25 Desember 2018): 123, <https://doi.org/10.30984/jii.v12i2.897>.

⁵⁷ Minsih dan Aninda Galih D, "Peran Guru Dalam Pengelolaan Kelas," *Profesi Pendidikan Dasar* 5, no. 1 (31 Juli 2018): 25, <https://doi.org/10.23917/ppd.v1i1.6144>.

CONCLUSION

Before implementing the Kurikulum Merdeka, schools must first understand the concept map of implementing the Kurikulum Merdeka. MES Kadisoka uses the Kurikulum Merdeka, but the implementation has not been for all classes since other classes are still implementing the 2013 Curriculum. The science learning in MES Kadisoka can train students' independence because natural and social science learning aims to train students to think critically, be curious, and make efforts to accomplish the PPSPS in the Kurikulum Merdeka. The observation results show that grade 4 students have good learning independence, which can be seen from the average percentage of learning independence owned by 85% or 23 students. The teacher has a role to teach, educate, become a facilitator and evaluator, provide guidance, and encourage creativity to maximize students' abilities. This study only examines the independent learning of elementary school students in one school. Therefore, it is expected that further research can expand the studies and involve many sources and research locations to achieve a broader analysis and to become beneficial for the world of education.

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We declare that this article is written objectively, does not contain potential conflicts related to research, authorship, and/or publication.


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