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Readiness of Middle School Science Teachers in Implementing *Kurikulum Merdeka*: A Case of Public School in Sidoarjo

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Abstract: This study aims to analyze the readiness junior high school science teachers in planning, implementing, and assessing science learning for science subjects according to the *Kurikulum Merdeka Belajar*. Research uses a qualitative method case study. Data collection used questionnaires, documentation and interviews. Research subjects were six science teachers. Data analysis refer Miles & Hubberman, namely; data collection, data condensation, data presentation (display), and data verification or conclusion drawing. Results showed everything was well prepared and in accordance with the *Kurikulum Merdeka* guidelines. The learning planning stage, science teachers review CP, make ATP and TP, make Teaching Modules, and compile assessments. The stage of implementing science learning according this *Kurikulum Merdeka*, it has an impact on students, where students are encouraged to be able contribute actively in the learning process. Addition, assessment stage, science learning is also in accordance with the *Kurikulum Merdeka*, namely by using congnitive and non-cognitive diagnostic assessments

Keywords: *Kurikulum Merdeka,* middle school, teacher readiness, science learning.

Abstrak: *Penelitian ini bertujuan untuk menganalisis kesiapan guru IPA SMP dalam perencanaan, pelaksanaan, dan asesmen pembelajaran IPA untuk mata pelajaran IPA sesuai dengan Kurikulum Merdeka Belajar. Penelitian menggunakan metode kualitatif studi kasus. Pengumpulan data menggunakan kuesioner, dokumentasi, dan wawancara. Subjek penelitian adalah enam orang guru IPA. Analisis data mengacu pada Miles & Hubberman, yaitu; pengumpulan data, kondensasi data, penyajian data (display), dan verifikasi data atau penarikan kesimpulan. Hasil penelitian menunjukkan semuanya telah dipersiapkan dengan baik dan sesuai dengan pedoman Kurikulum Merdeka Belajar. Tahap perencanaan pembelajaran, guru IPA mengkaji CP, membuat ATP dan TP, membuat Modul Ajar, dan menyusun penilaian. Tahap pelaksanaan pembelajaran IPA sesuai Kurikulum Merdeka Belajar dan memberikan dampak pada siswa, dimana siswa didorong untuk dapat berkontribusi aktif dalam proses pembelajaran. Selain itu, tahap penilaian, pembelajaran IPA juga sesuai dengan kurikulum mandiri, yaitu dengan menggunakan penilaian diagnostik kongnitif dan non-kognitif.*

Kata kunci: *Kurikulum Merdeka, sekolah menengah pertama, kesiapan guru, pembelajaran ipa.*

▪ INTRODUCTION

Curriculum is a very important component, because at all levels of educational units the curriculum is used as a guide for implementing the learning process in the proposed educational unit. The curriculum is an educational objective in which there is a vision, mission and unit objectives, and the curriculum functions as a basis for teachers to develop learning programs. The curriculum is a learning tool whose educational program planning is carried out by all elements of the school, including teachers and students (Primanita et al. 2022). Curriculum changes cannot be separated from the world of

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education. In Indonesia itself, changes often occur in the curriculum. This can be seen 11 times since Indonesia has made curriculum changes.

History of curriculum changes based on the Ministry of Education and Culture, namely: 1) *Kurikulum 1947, 2) Kurikulum 1954, 3) Kurikulum 1968, 4) Kurikulum 1973 (Pioneer School Development Project), 5) Kurikulum 1975, 6) Kurikulum 1984, 7) Kurikulum 1994*, 8) *Kurikulum 1997*, 9) *Kurikulum 2004* (Competency Based Curriculum), 10) *Kurikulum 2006* (Education Unit Level Curriculum), 11) *Kurikulum 2013* (Insani, 2019). This change is influenced by human desires which are always changing as well as external influences, namely changes in politics, culture and the economic climate (Daeng et al., 2018). This is also done with the aim of improving the quality and quality of education so that it is on par with existing education in the world. Changes in the education system are needed to improve the quality of a country's human resources (Sudarto et al., 2021).

Following the direction of the President of the Republic of Indonesia, regarding increasing Human Resources (HR). The Ministry of Education and Culture, Nadiem Anwar Makarim, conveyed the new curriculum in a speech made on November 25 2019 on the occasion of the 74th National Teachers' Day. He said that "Freedom to Learn is freedom to think". In the new curriculum, four "Freedom of Learning" education policy programs are decided, including Zoning Regulations for Admission of New Students (PPDB), Learning Implementation Plans (RPP), National Standard School Examinations (USBN), and National Examinations (UN) (Sinomi, 2022).

In an effort to face changes in the education system and curriculum, SMP Negeri 1 Sidoarjo requires adaptation and adjustments regarding the teaching and learning implementation that will be carried out, such as preparing instruments, preparing facilities and infrastructure to support independent learning. Based on observations obtained at SMP Negeri 1 Sidoarjo, one of the Natural Sciences (IPA) teachers believes that the *Kurikulum Merdeka Belajar* is very suitable to be implemented in Indonesia because this curriculum is student-centred to create a Pancasila student profile, because with a learning concept like this, children are taught for real life. He also believes that what is called a free-to-think is a student-centered learning process, because it exceeds the expectations of the teacher. Facts on the ground were also found that SMP Negeri 1 Sidoarjo will only implement the *Kurikulum Merdeka Belajar* in the 2022-2023 academic year. SMP Negeri 1 Sidoarjo is one of the driving schools in Sidoarjo, and there is 1 science teacher who is the driving teacher. Apart from that, SMP Negeri 1 Sidoarjo also received a label as a Pioneer International Standard School (RSBI) in 2007 and this school has also established a self-development learning program for each student or Building Learning Power (BLP). Before implementing the curriculum, SMP Negeri 1 Sidoarjo carried out dissemination to form a study committee, this was done because SMP Negeri 1 Sidoarjo was one of the schools that passed stage 1 of the driving school out of 15 schools in Sidoarjo. The next stage is In House Training (IHT) for 10 days, where each school invited representatives from 11 teachers to conduct Subject Teacher Conferences (MGMP). IHT is training carried out internally at one of the institutions that has been determined to carry out the training. This activity was carried out to prepare learning instruments, teaching modules and assessments.

Previous research explored the readiness of PAI teachers in facing the free learning policy regarding National Standar Assessment Test (USBN), National Test (UN), lesson

plan and new students admission zone, while in the research that will be carried out they want to reveal the readiness of junior high school science teachers in the free learning curriculum related to planning, implementation and assessment of learning in accordance with the curriculum freedom to learn (Afista et al., 2020). Apart from that, in the research conducted by Langke, the research has differences related to the research method carried out, namely in this research using a qualitative descriptive case study method where the data obtained is more detailed and in-depth because it focuses on one case to be observed, whereas in research previously used literature studies where the data obtained may not be able to meet research needs because it was collected by other people (Langke, 2021). In previous research conducted by Sinomi, there were differences in the research subjects, where the previous research used elementary school teachers as research subjects, while the current research used junior high school teachers as a research subject (Sinomi, 2022).

Every time a curriculum change occurs, every school will definitely prepare well to implement it. As was done by SMP Negeri 1 Sidoarjo in preparing the *Kurikulum Merdeka Belajar*. Every teacher will definitely prepare learning resources, learning media and infrastructure that can support the learning process in accordance with independent learning. Researchers are interested in analyzing the readiness of junior high school science teachers in the *Kurikulum Merdeka Belajar*. In accordance with the problem formulation, the research objectives include; 1) analyze the readiness of junior high school science teachers in planning learning for science subjects in accordance with the *Kurikulum Merdeka Belajar*, 2) analyze the readiness of junior high school science teachers in implementing learning for science subjects in accordance with the *Kurikulum Merdeka*, and 3) analyze the readiness of junior high school science teachers in learning assessments for science subjects in accordance with the *Kurikulum Merdeka Belajar*.

▪ METHOD

Participant

The research subjects were science teachers at SMP Negeri 1 Sidoarjo. The total sample was 6 science teachers. The sampling technique uses samples selected based on the researcher's subjectivity and is not carried out randomly.

Research Design and Procedures

This research model uses qualitative case study research. Kholik revealed that qualitative research is an analysis that forms descriptive data in the form of words from the actors being observed (Kholik, 2021). This research is used to examine a natural object, where in this case the researcher's position is the key element (Primanita et al., 2022). Case studies are data based on events that have occurred. The case study in question is to reveal the readiness of Science Teachers in the *Kurikulum Merdeka Belajar* according to the indicators.

This research procedure goes through several stages, namely; 1) development of research instruments: creating questionnaires, documentation and interviews, then validated by driving teacher practitioners and driving teacher facilitators, analyzed and revised according to the validator's suggestions; 2) provide questionnaires related to planning, implementation and assessment of science teacher readiness in the *Kurikulum Merdeka*; 3) carry out documentation related to planning, implementation and assessment of science teacher readiness in the *Kurikulum Merdeka*; 4) conducting interviews related

to planning, implementation and assessment of science teacher readiness in the *Kurikulum Merdeka*; 5) analysis of research data that has been obtained through questionnaires, documentation and interviews. The research was conducted from May to July 2023.

Instrument

The instruments used in this research were questionnaires, documentation and interviews. A questionnaire is used to describe the readiness of science teachers. This questionnaire is in the form of a statement with 3 indicators of teacher readiness, namely science lesson plan with 5 sub-indicators, implementation of science learning with 9 sub-indicators and science learning assessment with 3 sub-indicators. Documentation in this research includes Learning Achievements (CP) documents, Learning Stages Flow (ATP) documents, Learning Objectives (TP) documents, teaching module documents, photo documentation of the learning process, cognitive and non-cognitive diagnostic assessment documents, as well as student cognitive assessment results. Interviews in this research were conducted after the questionnaire and documentation had been collected, then in-depth interviews were conducted to re-examine the desired research data.

The validators in this research were driving teacher practitioners and driving teacher facilitators. The input from the validators is related to statements to be more in line with the *Kurikulum Merdeka Belajar* indicators and clarity of instructions regarding filling out the questionnaire. The following are indicators that have been validated to transfer some information through questionnaires, documentation and in-depth interviews regarding the readiness of science teachers in the *Kurikulum Merdeka Belajar* as follows;

Table 1. Teacher readiness indicators

No	Indicator	Sub Indicator
1	Science lesson plan	1. Educators carry out a review of Learning Achievements (CP).
		2. Educators develop a Learning Stages Flow (ATP).
		3. Educators set Learning Objectives (TP).
		4. Educators compile Teaching Modules.
		5. Educators make cognitive and non-cognitive diagnostic assessments.
2	IPA learning implementation	1. Educators apply differentiated learning in products, processes and content.
		2. Educators apply HOTS learning activities and 21st Century skills (4C).
		3. Educators encourage literacy and numeracy learning.
		4. Educators organize creative, interactive and fun learning.
		5. Educators organize challenging or project-based learning.
		6. Educators motivate students to play an active role in the learning process.
		7. Educators organize student-centered learning to develop students' talents and interests.

		8. Educators use a variety of learning media such as science library books, activity sheets, video materials, or website links that students need to study.
		9. Educators use formative assessments during learning to find out the extent to which learning objectives have been achieved.
3	Science learning assessment	1. Educators develop and provide non-cognitive diagnostic assessments for learning differentiation.
		2. Educators make formative assessments at the beginning or during learning.
		3. Educators make summative assessments to ensure the achievement of all learning objectives.

Data analysis

Our data analysis technique refers to Miles & Hubberman, where the data analysis technique consists of four components: data collection, data condensation, data presentation (display), and data verification or drawing conclusions (Sinomi, 2022). Data collection uses questionnaires, documentation and interviews. Data condensation is a stage for selecting, focusing and simplifying data that has been obtained from the results of questionnaires, documentation and interviews. Data presentation is carried out to compile relevant data so that it can become information that can be concluded and has a certain meaning. The next step is the stage of drawing conclusions from the research findings that have been carried out.

▪ RESULT AND DISSCUSSION

Based on the researchers' findings regarding the readiness of science teachers in the *Kurikulum Merdeka Belajar*, credible and valid results were obtained using triangulation techniques through questionnaires, documentation and interviews. The triangulation process begins by giving a questionnaire to science teachers, after that it continues with documentation and in the final stage an in-depth interview is conducted tore-check the desired research data. Data saturation was revealed through interviews conducted with 6 science teachers.

In implementing the *Kurikulum Merdeka Belajar*, the government offers three options for educational units including; 1) independent learning, 2) independent sharing, 3) independent change (Sanjayaa et al., 2022). The impact of changes to the *Kurikulum Merdeka Belajar* occurs on teachers and all components in the school. These changes include learning planning, learning implementation, and learning assessment (Sanjayaa et al., 2022). Based on the results of the analysis, the following results were obtained:

Science Lesson Plan

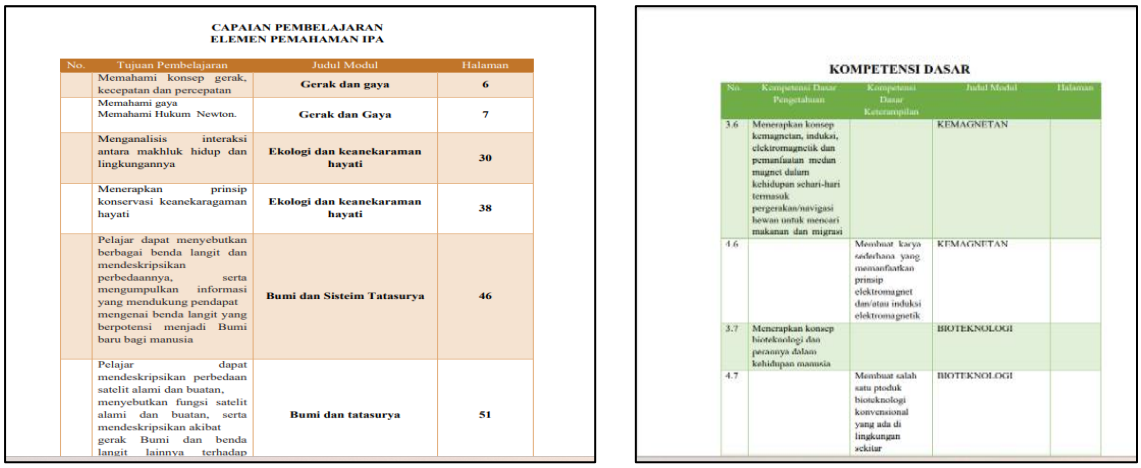
The questionnaire was given to science teachers at SMP Negeri 1 Sidoarjo with 6 teachers as subjects. The results of the learning planning questionnaire by the science teacher are as follows:

Table 2. Results of the science lesson plan questionnaire

No	Sub Indicator	Response (%)	
		Done	Are not done
1	Educators carry out a review of Learning Achievements (CP)	100	0
2	Educators develop a Learning Stages Flow (ATP)	100	0
3	Educators set Learning Objectives (TP)	100	0
4	Educators compile Teaching Modules	100	0
5	Educators make cognitive and non-cognitive diagnostic assessments	100	0

Based on Table 2, with science lesson plan which is broken down into 5 sub-indicators, the result is that the 5 sub-indicators get a 100% response related to the teacher having carried out a CP review, preparing ATP, determining TP, preparing Teaching Modules and making cognitive and non-cognitive diagnostic assessments. cognitive.

Below is documentation to reveal facts related to learning planning; Science lesson plan documents were obtained, including creating Learning Outcomes (CP), creating a Learning Objectives Flow (ATP), creating Learning Objectives (TP), compiling Teaching Modules and creating cognitive and non-cognitive diagnostic assessments. This plan is made by the teacher before the lesson is carried out. This plan will be applied to students directly in the 2022/2023 academic year. The results of the documentation on learning planning found that there were still some systematics still using K13 but the distribution of CP was in accordance with the *Kurikulum Merdeka.*



CAPAIAN PEMBELAJARAN
ELEMEN PEMAHAMAN IPA

No.	Tujuan Pembelajaran	Judul Modul	Halaman
	Memahami konsep gerak, kecepatan dan percepatan	**Gerak dan gaya**	**6**
	Memahami gaya Memahami Hukum Newton.	**Gerak dan Gaya**	**7**
	Menganalisis interaksi antara makhluk hidup dan lingkungannya	**Ekologi dan keanekaraman hayati**	**30**
	Menerapkan prinsip konservasi keanekaragaman hayati	**Ekologi dan keanekaraman hayati**	**38**
	Pelajar dapat menyebutkan berbagai benda langit dan mendeskripsikan perbedaannya, serta mengumpulkan informasi yang mendukung pendapat mengenai benda langit yang berpotensi menjadi Bumi baru bagi manusia	**Bumi dan Sisteim Tatasurya**	**46**
	Pelajar dapat mendeskripsikan perbedaan satelit alami dan buatan, menyebutkan fungsi satelit alami dan buatan, serta mendeskripsikan akibat gerak Bumi dan benda langit lainnya terhadap	**Bumi dan tatasurya**	**51**

KOMPETENSI DASAR

No.	Kompetensi Dasar Pengetahuan	Kompetensi Dasar Keterampilan	Judul Modul	Halaman
3.6	Menerapkan konsep kemagnetan, induksi, elektromagnetik dan pemanfaatan medan magnet dalam kehidupan sehari-hari termasuk pergerakan/navigasi hewan untuk mencari makanan dan migrasi		KEMAGNETAN	
4.6		Membuat karya sederhana yang memanfaatkan prinsip elektromagnet dan/atau induksi elektromagnetik	KEMAGNETAN	
3.7	Menerapkan konsep bioteknologi dan peranya dalam kehidupan manusia		BIOTEKNOLOGI	
4.7		Membuat salah satu ptoduk bioteknologi konvensional yang ada di lingkungan sekitar	BIOTEKNOLOGI	

(a) **(b)**

Figure 1. Science lesson plan at middle school

The results of interviews related to learning planning from one of the science teachers are presented, he is a driving teacher at SMP Negeri 1 Sidoarjo. From the results of interviews related to learning planning with 5 sub-indicators, the following results were obtained; that in the science lesson plan process that is in accordance with the *Kurikulum*

Merdeka Belajar, teachers pay attention to CP first, after that choose according to the competencies of each class. The next stage is analyzing CP which has been previously divided into ATP according to cognitive level, followed by analyzing ATP into TP from simple to complex. The next stage is preparing teaching materials, then continuing with implementing teaching materials and making assessments and follow-up. Teachers also prepare cognitive and non-cognitive diagnostic assessments which are structured flexibly, simply and contextually. Below is presented the credibility of the data to assess the truth of the research results that have been carried out;

Table 3. Credibility of science lesson plan

Sub Indicator	Questionnaire Results	Documents	Interview	Information
Educators carry out a review of Learning Achievements (CP)	Done	Support	Suitable	Credible
Educators develop a Learning Stages Flow (ATP)	Done	Support	Suitable	Credible
Educators set Learning Objectives (TP)	Done	Support	Suitable	Credible
Educators compile Teaching Modules	Done	Support	Suitable	Credible
Educators make cognitive and non-cognitive diagnostic assessments	Done	Support	Suitable	Credible

Based on the data in Table 3, it states that the data is credible or true. This is proven by the results of questionnaires, documentation and interviews to reveal the readiness of science teachers in terms of learning planning. The results show that everything has been prepared and in accordance with the guidelines of the *Kurikulum Merdeka Belajar*, namely starting from studying CP, making ATP and TP, followed by making Teaching Modules, and compiling assessments.

Learning planning has an important role in changing the curriculum into learning activities that can be carried out in the classroom (Mursyid et al., 2023). Learning planning is developing learning into an integrated system and includes several interacting elements (Barlian et al., 2022). Learning Implementation Plan (RPP) is the initial activity of learning planning made for several meetings, karena Before carrying out learning activities, plan appropriate learning, namely; create general objectives (TU), special educational objectives (ICT), lesson materials, methods, learning tools and assessment tools (Qasim & Maskiah, 2016).

In the *Kurikulum Merdeka*, related to learning planning, it gives teachers the freedom to choose, create and develop teaching modulesaccording to the context, characteristics and needs of students(Purnawanto, 2022). An *Kurikulum Merdeka* gives students the freedom to explore their knowledge (Okyranida et al., 2023). Learning principles are designed by taking into account the stages of development and achievements of students at that time, based on their respective learning needs, reflecting the characteristics and development of different students so that learning becomes meaningful and enjoyable.The main objectives of learning planning include showing the

planning, development, assessment and processing of learning (Anggraeni & Akbar, 2018).

Science Learning Implementation

The questionnaire was given to science teachers at SMP Negeri 1 Sidoarjo with 6 teachers as subjects. The results of the learning planning questionnaire by the science teacher are as follows:

Table 4. Results of the questionnaire for the implementation of middle school science learning

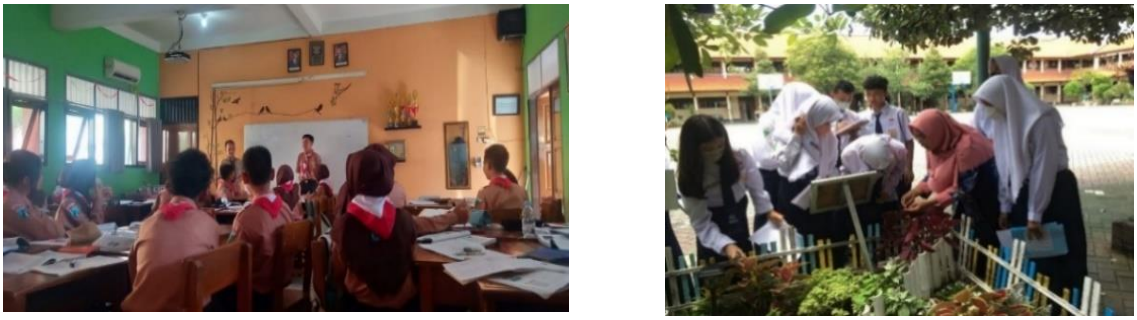
No	Sub Indicator	Response (%)	
		Yes	No
1	Educators apply differentiated learning in products, processes and content.	100	0
2	Educators apply HOTS learning activities and 21st century skills (4C)	100	0
3	Educators encourage literacy and numeracy learning	100	0
4	Educators organize creative, interactive and fun learning	100	0
5	Educators organize challenging or project-based learning	100	0
6	Educators motivate students to play an active role in the learning process	100	0
7	Educators organize student-centered learning to develop students' talents and interests	100	0
8	Educators use a variety of learning media such as science subject library books, activity sheets, video materials, or website links that students need to study.	100	0
9	Educators use formative assessments during learning to find out the extent to which learning objectives have been achieved	100	0

Based on Table 4, with the implementation of science learning which is broken down into 9 sub-indicators, the results show that all sub-indicators get a 100% response related to teachers encouraging literacy and numeracy learning, organizing creative, interactive and fun learning, teachers also implementing HOTs and learning activities. 21st Century skills (4C), organizing challenging or project-based learning, motivating students to play an active role in the learning process, and using a variety of learning media. Apart from that, teachers also apply differentiated learning between products, processes and content and use formative assessments during learning to see to what extent the learning objectives have been achieved.

Documentation is presented below to reveal facts related to the implementation of learning. Documentation of the implementation of science learning is obtained, including the existence of teaching modules that are in accordance with the *Kurikulum Merdeka*

Belajar and there are also teaching modules whose structure still uses the K13 curriculum but the content is in accordance with the *Kurikulum Merdeka Belajar* as well as the facilities and The infrastructure has been well prepared, such as classrooms that are equipped with projectors and a library as a place for students to look for information about the subject matter provided in class. Facilities and infrastructure are also one of the factors that influence the implementation of the *Kurikulum Merdeka Belajar* (Tricahyati & Zaim, 2023). The implementation of science learning using the curriculum they studied at SMP Negeri 1 Sidoarjo will only be implemented in the 2022/2023 academic year.

(a) **(b)** **(c)**



(a) **(b)**

Figure 2. Implementation of Middle school science learning

The results of interviews related to the implementation of learning from one of the science teachers are presented, he is a driving teacher at SMP Negeri 1 Sidoarjo. From the results of interviews that have been conducted, related to the implementation of learning with 9 sub-indicators, the following results were obtained; that in the process of implementing science learning in accordance with the *Kurikulum Merdeka Belajar*, teachers can change the content, processes, products, learning environment in each class according to the profile of the students in their class. Teachers can also motivate students to change and express knowledge so as to produce or create something new by knowing

concrete differences in ideas through argumentation, solving problems, reasoning, hypothesizing and understanding in depth complex problems.

Regarding literacy and numeracy learning, at the beginning of the lesson the teacher holds a question and answer session with students about what they have read and writes down one question from what they have read and at the end with practical learning, so that students can create data. The way teachers implement active, innovative, creative and effective learning is by providing choices of ways to complete assignments and carrying out contextual learning activities to encourage students to think critically.

The learning process for science subjects at SMP Negeri 1 Sidoarjo uses a project-based model. Apart from that, the way teachers do so that students can play an active role is by introducing interesting phenomena, gamesword in a question, provide prompt questions, form study groups, complete questions, and start class by asking questions. In implementing the concept of an *Kurikulum Merdeka Belajar* related to a student-centered learning process, the methods used by science teachers are collaborating with students' parents, holding regular exercises, providing attention, strengthening learning motivation, supporting extracurricular activities, and conducting evaluations. During the learning process, teachers use various learning media such as; science subject library books, activity sheets, material videos, or website links that students need to study. Science teachers also use formative assessments during learning to see to what extent the learning objectives have been achieved. Below is presented the credibility of the data to assess the truth of the research results that have been carried out;

Table 5. Credibility of science learning implementation data

Sub Indicator	Questionnaire Results	Documents	Interview	Information
Educators apply differentiated learning in products, processes and content.	Done	Support	Match	Credible
Educators apply HOTS learning activities and 21st century skills (4C)	Done	Support	Match	Credible
Educators encourage literacy and numeracy learning	Done	Support	Match	Credible
Educators organize creative, interactive and fun learning	Done	Support	Match	Credible
Educators organize challenging or project-based learning	Done	Support	Match	Credible
Educators motivate students to play an active role in the learning process	Done	Support	Match	Credible
Educators organize student-centered learning to develop students' talents and interests	Done	Support	Match	Credible
Educators use a variety of learning media such as science subject library books, activity sheets, video materials, or	Done	Support	Match	Credible

website links that students need to study.				
Educators use formative assessments during learning to find out the extent to which learning objectives have been achieved	Done	Support	Match	Credible

Based on the data in Table 5, it states that the data is credible or true. This is proven by the results of questionnaires, documentation and interviews to reveal the readiness of science teachers in terms of implementing science learning. The results show that teachers implement learning processes that are in accordance with the *Kurikulum Merdeka Belajar*, namely by carrying out differentiated learning, implementing HOTs learning, encouraging literacy and numeracy learning, especially in science subjects, making learning creative, interactive and fun and using a project-based model for science subjects. Teachers also motivate students to be active during the learning process and organize student-centered learning to develop interests and talents. Teachers also use a variety of learning media and use formative assessments to see the extent to which learning objectives have been achieved.

The *Kurikulum Merdeka Belajar* is a curriculum that gives teachers the freedom to design quality learning according to student needs and the learning environment. In the *Kurikulum Merdeka Belajar*, learning models differ in each school, this is because it is adjusted to the teacher's ability to implement learning strategies (Okyranida et al., 2023). What is meant by independent learning is to carry out learning that is not tied to the existing curriculum at school (Anggreini & Priyojadmiko, 2022). Freedom to learn, namely educators and studentshave the freedom to innovate, freedom to learn independently and creatively (Hattarina et al., 2022). This is in accordance with the characteristics of an independent learning plan, namely developing students' soft skills and character, focusing on relevant material and flexible learning. The opening of learning activities can be done by increasing attention and motivation, creating a pedagogical attitude, increasing students' ability to learn, creating a democratic learning atmosphere, checking student attendance, checking student readiness, conveying the goals achieved, describing activities or learning experiences that will take place (Shofia Hattarina et al., 2022). The essence of learning must be able to create interactive, inspiring, fun, challenging learning conditions, motivate students, take initiative, creativity and promote student independence (Anggraeni & Akbar, 2018).

Based on the documentation results, it can be seen that students are encouraged to contribute actively to the learning process. Students' contributions are required to think critically, take initiative, and be able to solve academic problems in an effective and applicable way (Anggara et al., 2023). In the *Kurikulum Merdeka*, students are able to explore and show interest in learning with the aim of forming a spirit of competence and good student character (Miladiah et al., 2023). In the *Kurikulum Merdeka*, students do not only focus on target numbers, but each student has the opportunity to explore other parts, such as personality, the decision-making process needed to become a better person in life and thinking patterns.

From an implementation perspective, we also need to look at readiness for the *Kurikulum Merdeka Belajar*. The readiness referred to here is readiness (HR), readiness

of infrastructure, and readiness of mindset (Miladiah et al., 2023). In implementing the *Kurikulum Merdeka Belajar*, teachers are needed who are mentally strong and ready to adapt to change (Nurzen, 2022). Several things that teachers need to pay attention to in implementing the *Kurikulum Merdeka Belajar*, namely; ready to innovate, ready to learn, flexible and communicative (Nurzen, 2022). With this, it is hoped that collaboration between young teachers and senior teachers will accompany and assist in mastering technology (Chery, 2023). Because learning is successful if everyone involved has prepared everything well and correctly.

Science Learning Assessment

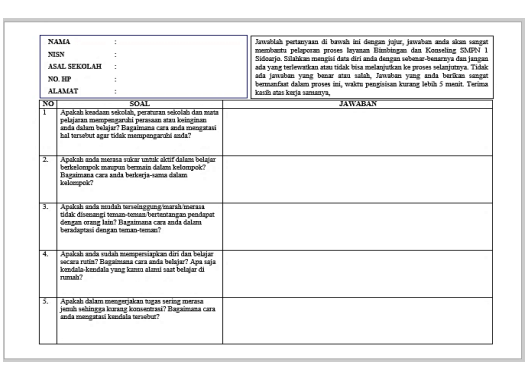
The questionnaire was given to science teachers at SMP Negeri 1 Sidoarjo with 6 teachers as subjects. The results of the learning assessment questionnaire by the science teacher are as follows;

Table 6. Results of the science learning assessment questionnaire

No	Sub Indicator	Response (%)	
		Yes	No
1	Educators develop and provide non-cognitive diagnostic assessments for learning differentiation	100	0
2	Educators make formative assessments at the beginning or during learning	100	0
3	Educators make summative assessments to ensure the achievement of all learning objectives	100	0

Based on Table 6, with the science learning assessment which is broken down into 3 sub-indicators, the results show that the 3 sub-indicators received a 100% response related to the teacher having prepared and provided a non-cognitive diagnostic assessment for learning differentiation, the teacher also made a formative assessment at the beginning or during learning. and make summative assessments to ensure the achievement of all learning objectives.

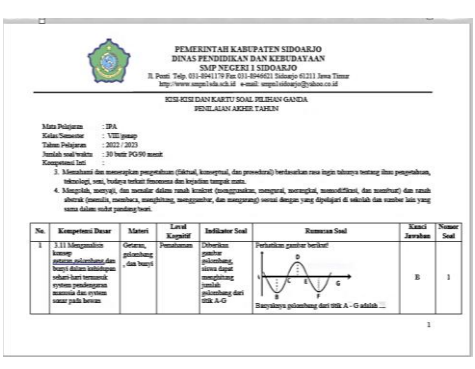
Below, documentation is presented to reveal facts related to the implementation of learning. Documentation of science learning assessments is obtained, including compiling and providing non-cognitive diagnostic assessments for learning differentiation, making formative assessments at the beginning or during learning, making summative assessments to ensure the achievement of all learning objectives. From the data below, it can be seen that teachers have implemented science learning assessments in accordance with the *Kurikulum Merdeka Belajar.*



NAMA :
NISN :
ASAL SEKOLAH :
NO. HP :
ALAMAT :

Jawablah pertanyaan di bawah ini dengan jujur, jawaban anda akan sangat membantu pelaporan proses layanan Bimbingan dan Konseling SMPN 1 Sidoarjo. Silahkan mengisi data diri anda dengan sebenar-benarnya dan jangan ada yang terlewatkan atau tidak bisa melanjutkan ke proses selanjutnya. Tidak ada jawaban yang benar atau salah, Jawaban yang anda berikan sangat bermanfaat dalam proses ini, waktu pengisian kurang lebih 5 menit. Terima kasih atas kerja samanya,

NO	SOAL	JAWABAN
1	Apakah keadaan sekolah, peraturan sekolah dan mata pelajaran mempengaruhi perasaan atau keinginan anda dalam belajar? Bagaimana cara anda mengatasi hal tersebut agar tidak mempengaruhi anda?	
2.	Apakah anda merasa sukar untuk aktif dalam belajar berkelompok maupun bermain dalam kelompok? Bagaimana cara anda berkerja-sama dalam kelompok?	
3.	Apakah anda mudah tersinggung/marah/merasa tidak diseangi teman-teman bertentangan pendapat dengan orang lain? Bagaimana cara anda dalam beradaptasi dengan teman-teman?	
4.	Apakah anda sudah mempersiapkan diri dan belajar secara rutin? Bagaimana cara anda belajar? Apa saja kendala-kendala yang kamu alami saat belajar di rumah?	
5.	Apakah dalam mengerjakan tugas sering merasa jenuh sehingga kurang konsentrasi? Bagaimana cara anda mengatasi kendala tersebut?	



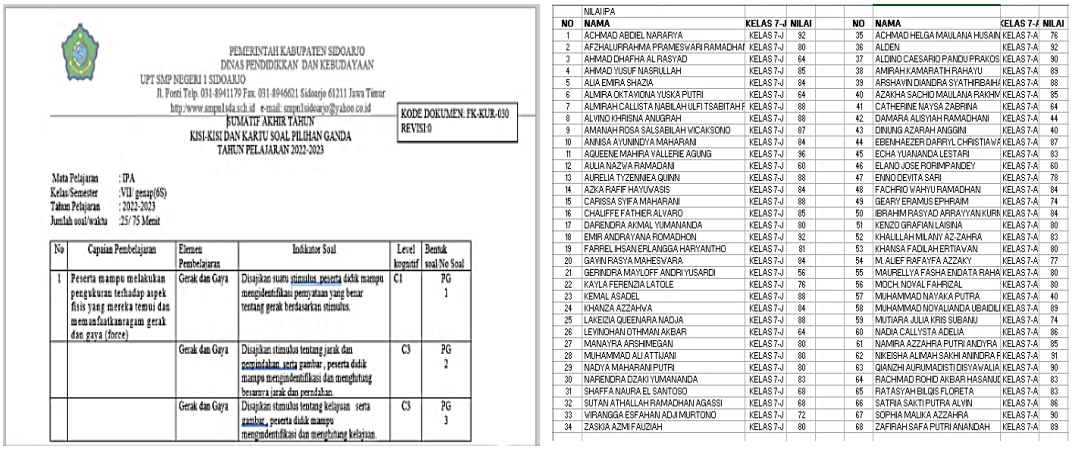
PEMERINTAH KABUPATEN SIDOARJO
DINAS PENDIDIKAN DAN KEBUDAYAAN
SMP NEGERI 1 SIDOARJO
Jl. Pemi. Telp. 031-8941179 Fax 031-8946821 Sidoarjo 61211 Jawa Timur
http://www.smpn1sda.sch.id e-mail: smpn1sidoarjo@yahoo.co.id

KISI-KISI DAN KARTU SOAL PILIHAN GANDA
PENILAIAN AKHIR TAHUN

Mata Pelajaran : IPA
Kelas/Semester : VIII genap
Tahun Pelajaran : 2022 / 2023
Jumlah soal/waktu : 30 butir PG/90 menit
Kompetensi Inti :

3. Memahami dan menerapkan pengetahuan (faktual, konseptual, dan prosedural) berdasarkan rasa ingin tahunya tentang ilmu pengetahuan, teknologi, seni, budaya terkait fenomena dan kejadian tampak mata.
4. Mengolah, menyaji, dan menalar dalam ranah konkret (menggunakan, mengurai, merangkai, memodifikasi, dan membuat) dan ranah abstrak (menulis, membaca, menghitung, menggambar, dan mengarang) sesuai dengan yang dipelajari di sekolah dan sumber lain yang sama dalam sudut pandang/teori.

No.	Kompetensi Dasar	Materi	Level Kognitif	Indikator Soal	Rumusan Soal	Kunci Jawaban	Nomor Soal
1	3.11 Menganalisis konsep gerak pada gelombang dan bunyi dalam kehidupan sehari-hari termasuk sistem pendengaran manusia dan sistem sonar pada hewan	Getaran, gelombang , dan bunyi	Pemahaman	Diberikan gambar gelombang, siswa dapat menghitung jumlah gelombang dari titik A-G	Perhatikan gambar berikut! Banyaknya gelombang dari titik A - G adalah ...	B	1



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KODE DOKUMEN: FK-KUR-030
REVISI:0

SUMATIF AKHIR TAHUN
KISI-KISI DAN KARTU SOAL PILIHAN GANDA
TAHUN PELAJARAN 2022-2023

Mata Pelajaran : IPA
Kelas/Semester : VII/ genap(6S)
Tahun Pelajaran : 2022-2023
Jumlah soal/waktu : 25/ 75 Menit

No	Capaian Pembelajaran	Elemen Pembelajaran	Indikator Soal	Level kognitif	Bentuk soal No Soal
1	Peserta mampu melakukan pengukuran terhadap aspek fisis yang mereka temui dan memanfaatkannagam gerak dan gaya (force)	Gerak dan Gaya	Disajikan suatu stimulus, peserta didik mampu mengidentifikasi pernyataan yang benar tentang gerak berdasarkan stimulus.	C1	PG 1
		Gerak dan Gaya	Disajikan stimulus tentang jarak dan perpindahan serta gambar , peserta didik mampu mengidentifikasi dan menghitung besarnya jarak dan perpindahan	C3	PG 2
		Gerak dan Gaya	Disajikan stimulus tentang kelajuan serta gambar , peserta didik mampu mengidentifikasi dan menghitung kelajuan	C3	PG 3

NILAI IPA

NO	NAMA	KELAS 7-J	NILAI	NO	NAMA	KELAS 7-A	NILAI
1	ACHMAD ABDIEL NARARYA	KELAS 7-J	92	35	ACHMAD HELGA MAULANA HUSAIN	KELAS 7-A	76
2	AFZHALURRAHMA PRAMESVARI RAMADHAN	KELAS 7-J	80	36	ALDEN	KELAS 7-A	92
3	AHMAD DHAFHA AL RASYAD	KELAS 7-J	64	37	ALDINO CAESARIO PANDU PRAKOS	KELAS 7-A	90
4	AHMAD YUSUF NASRULLAH	KELAS 7-J	85	38	AMIRAH KAMARATIH RAHAYU	KELAS 7-A	89
5	ALIA EMIRA SHAZIA	KELAS 7-J	84	39	ARSHAVIN CHANDRA SYATHIRBAKH	KELAS 7-A	88
6	ALMIRA OKTAVIONA YUSKA PUTRI	KELAS 7-J	64	40	AZAKHA SACHIO MAULANA RAKHM	KELAS 7-A	85
7	ALMIRAH CALLISTA NABILAH ULFI TSABITAH F	KELAS 7-J	88	41	CATHERINE NAYSA ZABRINA	KELAS 7-A	64
8	ALVINO KHRISNA ANUGRAH	KELAS 7-J	88	42	DAMARA ALISYIAH RAMADHANI	KELAS 7-A	44
9	AMANAH ROSA SALSABILAH VICAKSONO	KELAS 7-J	87	43	DINUNG AZARIAH ANGGINI	KELAS 7-A	40
10	ANNISA AYUNINDYA MAHARANI	KELAS 7-J	84	44	EBENHAEZER DARRYL CHRISTIAWA	KELAS 7-A	87
11	AQUEENE MAHIRA YALLERIE AGUNG	KELAS 7-J	96	45	ECHA YUANANDA LESTARI	KELAS 7-A	83
12	AULIA NAZVA RAMADANI	KELAS 7-J	80	46	ELANO JOSE PORIMPANDEY	KELAS 7-A	60
13	AURELIA TYZENNIEA QUINN	KELAS 7-J	88	47	ENNO DEVITA SARI	KELAS 7-A	78
14	AZKA RAFIF HAYUVASIS	KELAS 7-J	84	48	FACHRIO WAHYU RAMADHAN	KELAS 7-A	84
15	CARISSA SYIFA MAHARANI	KELAS 7-J	88	49	GEARY ERAMUS EPHRAIM	KELAS 7-A	74
16	CHALIFFE FATHIER ALVARO	KELAS 7-J	85	50	IBRAHIM RASYAD ARRAYYAN KURN	KELAS 7-A	84
17	DARENDRA AKMAL YUMANANDA	KELAS 7-J	60	51	KENZO GRAFIAN LAISINA	KELAS 7-A	80
18	EMIR ANDRAYANA ROMADHON	KELAS 7-J	92	52	KHALILLAH MULAMY AZ ZAHRA	KELAS 7-A	83
19	FARREL IHSAN EPLANGGA HARYANTHO	KELAS 7-J	81	53	KHANSA FADILAH ERTIAVAN	KELAS 7-A	80
20	GAVIN RASYA MAHESVARA	KELAS 7-J	84	54	M. ALIEF RAFAYFA AZZAKY	KELAS 7-A	77
21	GERINDRA MAYLOFF ANDRI YUSARDI	KELAS 7-J	56	55	MAURELLYA FASHA ENDATA RAHA	KELAS 7-A	80
22	KAYLA FERENZIA LATOLE	KELAS 7-J	76	56	MOCH. NOVAL FAHRIZAL	KELAS 7-A	80
23	KEMAL ASADEL	KELAS 7-J	88	57	MUHAMMAD NAYAKA PUTRA	KELAS 7-A	40
24	KHANZA AZZAHVA	KELAS 7-J	84	58	MUHAMMAD NOYALANDA UBAIDILI	KELAS 7-A	89
25	LAKEIDA QUEENARA NADJA	KELAS 7-J	88	59	MUTIARA JULIA KRIS SUBANU	KELAS 7-A	74
26	LEVINOHAN OTHMAN AKBAR	KELAS 7-J	64	60	NADIA CALLYSTA ADELIA	KELAS 7-A	86
27	MANAYRA ARSHMEGAN	KELAS 7-J	80	61	NAMIRA AZZAHRA PUTRI ANDYRA	KELAS 7-A	85
28	MUHAMMAD ALI ATTIJANI	KELAS 7-J	80	62	NIKEISHA ALIMAH SAKHI ANINDRA F	KELAS 7-A	91
29	NADYA MAHARANI PUTRI	KELAS 7-J	80	63	QIANZHI AURUMADISTI DISYAVALIA	KELAS 7-A	90
30	NARENDRA DZAKI YUMANANDA	KELAS 7-J	83	64	RACHMAD ROHID AKBAR HASANUL	KELAS 7-A	83
31	SHAFFA NAURA EL SANTOSO	KELAS 7-J	68	65	RATASYAH BILQIS FLORETA	KELAS 7-A	83
32	SUTAN ATHALLAH RAMADHAN AGASSI	KELAS 7-J	68	66	SATRIA SAKTI PUTRA ALVIN	KELAS 7-A	86
33	VIRANGGA ESFAHAN ADJI MURTONO	KELAS 7-J	72	67	SOPHIA MALIKA AZZAHRA	KELAS 7-A	90
34	ZASKIA AZMI FAUZIAH	KELAS 7-J	80	68	ZAFIRAH SAFA PUTRI ANANDAH	KELAS 7-A	89

Figure 3. Middle school science learning assessment

The results of interviews related to the learning assessment of one of the science teachers are presented, he is a driving teacher at SMP Negeri 1 Sidoarjo. From the results of interviews that have been conducted, related to learning assessment with 3 sub-indicators, the following results were obtained; that in the science learning assessment process in accordance with the *Kurikulum Merdeka Belajar*, namely, the science teacher prepares and provides non-cognitive diagnostic assessments for learning differentiation. Science teachers also make formative assessments at the beginning or during learning and science teachers also make summative assessments to ensure the achievement of all learning objectives.

Based on the results of the interview, it appears that at the beginning of learning the science teacher provides a non-cognitive diagnostic assessment as an initial measure to determine students' readiness to accept the learning that will be carried out. Science teachers also provide formative assessments during learning to find out the objectives of the learning that has been carried out. And at the end of the semester the science teacher also makes a summative assessment to ensure the achievement of all learning objectives. From these stages, it can be seen that the science teacher at SMP Negeri 1 Sidoarjo has carried out learning assessments in accordance with the guidelines of the *Kurikulum Merdeka Belajar*. Below is presented the credibility of the data to assess the truth of the research results that have been carried out;

Table 7. Credibility of science learning assessment

Sub Indicator	Questionnaire Results	Documents	Interview	Information
Educators develop and provide non-cognitive diagnostic assessments for learning differentiation	Done	Support	Match	Credible
Educators make formative assessments at the beginning or during learning	Done	Support	Match	Credible
Educators make summative assessments to ensure the achievement of all learning objectives	Done	Support	Match	Credible

Based on the data in Table 7, it states that the data is credible or true. This is proven by the results of questionnaires, documentation and interviews to reveal the readiness of science teachers in terms of learning assessment, getting results that everything has been prepared and is in accordance with the guidelines of the *Kurikulum Merdeka Belajar*. Where teachers prepare and provide non-cognitive diagnostic assessments for learning differentiation, make formative assessments at the beginning or during learning, make summative assessments to ensure the achievement of all learning objectives, all of this is implemented in the 2022/2023 academic year.

Assessment is carried out to look for evidence or basis that reflects the achievement of learning objectives.Assessment isan important part of the learning process, because assessment can determine the quality of learning activities (Rosidah et al., 2021). In the *Kurikulum Merdeka Belajar*, assessment is divided into 2 categories, namely formative assessment and summative assessment. Formative assessment is an assessment to provide information or feedback for teachers and students to improve the learning process(Purnawanto, 2022). Formative assessments are carried out at the beginning of learning with the aim of determining students' readiness to receive the material and achieve learning objectives. Regarding this assessment, teachers at SMP Negeri 1 Sidoarjo have carried it out in implementing the *Kurikulum Merdeka* in the 2022/2023 academic year.

Different from formative assessments, summative assessments are part of how to calculate final semester grades. Summative assessment is an assessment used to determine the achievement of the learning objectives that have been created(Purnawanto, 2022). Regarding summative assessment, the science teacher at SMP Negeri 1 Sidoarjo uses cognitive assessment by creating questions that include literacy and numeracy and there are also HOTS questions in accordance with the concept of the *Kurikulum Merdeka Belajar*.

Apart from cognitive and non-cognitive assessments, teachers also assess students' skills using performance, product, project and portfolio assessments (Pantiwati & Nyono, 2020). Other assessments can also be used, namely practice assessors, these assessors are used to measure student responses related to skills in carrying out activities with competency demands (Pantiwati & Nyono, 2020).The *Kurikulum Merdeka* assessment at driving schools is a comprehensive assessment that encourages students to acquire skills that match their talents and interests to achieve the minimum number of points that students must achieve or say there are no more KKM in independent (Anggara et al., 2023).

▪ CONCLUSION

Based on the results of the research and discussion, it can be concluded that the readiness of science teachers related to the *Kurikulum Merdeka Belajar* at SMP Negeri 1 Sidoarjo is 100% well prepared and in accordance with the *Kurikulum Merdeka* guidelines. At the learning planning stage, the science teacher conducts a CP review, creates an ATP and TP, continues with creating a Teaching Module, and prepares an assessment. At the implementation stage, science learning according to the *Kurikulum Merdeka* has an impact on students, where students are encouraged to contribute actively to the learning process. Apart from that, the science learning assessment stage is also in accordance with the *Kurikulum Merdeka,* namely by using cognitive (formative and

summative) and non-cognitive diagnostic assessments. From the results of this research, it is hoped that it can be used as an illustration for other schools that will implement the *Kurikulum Merdeka Belajar* in their respective schools, so that everyone is well prepared.

Based on the research that has been carried out, suggestions are made in this research, related to the new *Kurikulum Merdeka Belajar* being implemented for one year at SMP Negeri 1 Sidoarjo, so it is hoped that future researchers can carry out further research to dig deeper into information for science teachers, so that analysis and conclusions can be achieved. deeper.

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