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Impelementation of Kurikulum Merdeka (Freedom curriculum) in science learning: A case study in Sekolah Indonesia Kuala Lumpur, Malaysia

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Abstract: Many countries have focused on developing curricula that emphasize competencies within their educational frameworks. In Indonesia, schools have adopted the "Kurikulum Merdeka" (Freedom Curriculum), backed by government initiatives. Indonesian schools abroad have also implemented this curriculum, notably in Kuala Lumpur, Malaysia. This study investigates the implementation of the Kurikulum Merdeka (KM) at the Indonesian School Kuala Lumpur (SIKL), with a specific emphasis on science education. The Indonesian Ministry of Education and Culture developed KM, a novel curriculum that prioritizes the growth of students' competencies and character. This research utilized a mixed-method approach, employing an explanatory sequential method, to collect and analyze both quantitative and qualitative data. The study involved 14 teachers representing various educational levels and subjects, including three dedicated to science. Findings revealed that 71.4% of teachers still needed to establish learning objectives; 64.3% had not created teaching modules; and all used electronic teaching materials. Furthermore, 92.9% participated in P5 activities, albeit not always as implementers, and 42.9% faced difficulties in grasping the concept and execution of P5. Qualitative analysis indicated that all science teachers had integrated the Kurikulum Merdeka into their teaching processes. However, they encountered challenges such as generating teaching ideas, the high cost of project implementation, diverse student abilities, and limited resources.

Keywords: *Freedom curriculum, Indonesian School Kuala Lumpur implementation, Science education.*

1. Introduction

In 2021, the Indonesian Ministry of Education and Culture introduced the Kurikulum Merdeka (Freedom Curriculum), an educational reform. The curriculum places an emphasis on student-centred learning, flexibility in content delivery and greater autonomy for teachers in the design of learning experiences. The curriculum is designed to cultivate critical thinking, creativity, collaboration, and communication (the 4Cs), which are aligned with 21st-century skills. By reducing the focus on standardised assessments, the Kurikulum Merdeka seeks to encourage a more holistic approach to education, allowing schools to adapt their teaching methods to the specific needs of their students and the context in which they operate.

In the field of science education, the Kurikulum Merdeka places an emphasis on inquiry-based learning, which encourages students to engage in active exploration of scientific concepts through experimentation and problem-solving. This represents a shift from the traditional didactic teaching approach to one that is more interactive, with the objective of developing scientific reasoning and critical analysis in students. [1]

The case of Sekolah Indonesia Kuala Lumpur (SIKL), located in Malaysia, serves Indonesian expatriates and its curriculum adheres to the guidelines set forth by the Ministry of Education of the Republic of Indonesia. As an educational institution operating in a different country, SIKL is confronted

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with distinctive challenges and prospects in the implementation of Kurikulum Merdeka. Cultural, social, and infrastructural differences may influence the manner in which the curriculum is adapted to suit local conditions, while ensuring that the core objectives of Indonesian educational reforms are maintained.

Given that SIKL is situated in a multicultural environment, the integration of Kurikulum Merdeka in science learning involves adapting the curriculum to meet the needs of Indonesian students while also acknowledging Malaysia's broader educational and scientific landscape. This international setting provides an intriguing case study for examining the implementation of Kurikulum Merdeka outside of Indonesia and the potential for cross-cultural educational innovations. [2]

In the context of science learning, Kurikulum Merdeka espouses an interdisciplinary approach, which fuses scientific knowledge with real-world applications. This approach entails project-based learning (PBL), wherein students engage with authentic problems or scenarios that necessitate the application of scientific principles in novel ways. The teacher's role undergoes a transformation, shifting from that of the primary source of knowledge to that of a facilitator who guides students on their learning journey. [3]

For SIKL, this necessitates a modification of pedagogical methods to facilitate the creation of a more exploratory learning environment. Nevertheless, the efficacy of this transition is contingent upon a number of variables, including the accessibility of resources, the quality of teacher training, and the capacity of the educational institution to furnish the requisite support structures for both educators and students.

The implementation of Kurikulum Merdeka in SIKL presents a number of challenges, including the issue of teacher readiness. The transition from a traditional curriculum to a more flexible, student-centred approach requires a significant investment in professional development for teachers. It is essential that they possess both content knowledge and a command of contemporary pedagogical techniques, including the utilisation of technology and inquiry-based methodologies. [4]

The question of resource availability is a significant one. The implementation of the Kurikulum Merdeka in an international setting such as SIKL necessitates the provision of adequate laboratory facilities, access to scientific tools and educational resources that support the inquiry-based model of the curriculum. A lack of access to such resources could impede the effective implementation of the curriculum. As a result of its location in Malaysia, the SIKL student body is exposed to a multicultural environment. It is incumbent upon teachers to navigate potential cultural and linguistic differences that might affect student engagement and understanding of scientific concepts. [5]

The implementation of Kurikulum Merdeka has the potential to positively impact the learning outcomes in science for students at SIKL. The promotion of critical thinking, creativity and hands-on learning enables students to gain a deeper understanding of scientific principles and develop the ability to apply this knowledge in real-world situations. Moreover, the interdisciplinary and collaborative nature of Kurikulum Merdeka encourages students to perceive science as a dynamic field, with connections to other disciplines and societal issues. [6]

Furthermore, the curriculum's flexibility allows SIKL to incorporate local or international scientific contexts, thereby rendering science education more pertinent and engaging for students. For instance, environmental issues specific to Malaysia, such as tropical deforestation or urban pollution, could be employed as case studies in science lessons, thus rendering the subject matter more relatable and impactful for students.

In accordance with that concept, the Ministry of Education and Culture of the Republic of Indonesia issued a policy in 2022 related to curriculum development, now known as the "Kurikulum Merdeka" (Freedom Curriculum). The development of this curriculum is an effort to refine the previous curriculum, known as the 2013 curriculum. Kurikulum Merdeka is an educational initiative that grants educational institutions the freedom to determine a suitable curriculum for specific regions or areas. In implementing the Kurikulum Merdeka policy, the government has designed various programs. [7]

Various countries have been involved in developing curricula that emphasize and integrate competencies into their curriculum development vision and design. Recently, more countries have

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joined this trend. Curriculum revisions aim to shift the role of schools from being primarily knowledge delivery centers to becoming platforms for competency development, granting greater autonomy to local schools. Self-management, information-gathering skills, creative thinking, aesthetic-emotional capacity, communication skills, and citizenship competencies are emphasized Including Indonesia, which has currently undergone curriculum development that aligns with global demands.[8]

"Merdeka Belajar" is an innovation from a flagship program initiated by the Minister of Education and Culture in 2022. The concept of "Merdeka belajar" is easy to say but challenging to implement. The concept of "Merdeka Belajar" is related to commitment, independence, and the ability to realize it, so all three are interconnected and cannot be separated.

To produce a curriculum that is relevant to the National Education Goals and the educational vision of the nation's founders, the government adheres to several principles in the design process of the Kurikulum Merdeka (Freedom Curriculum): 1) simplicity, ease of understanding, and implementation, 2) a focus on the competencies and character of all students, 3) flexibility, 4) alignment, 5) collaboration, and 6) consideration of research findings and feedback

The Kurikulum Merdeka was developed to create enjoyable, stress-free learning experiences that allow students to show and develop their talents. In the Kurikulum Merdeka, the concept of "Merdeka Belajar" (Freedom to Learn) is emphasized to assist in recovering learning crises resulting from the COVID-19 pandemic. The need for competencies and the role and use of technology in the current era are strong reasons for the development of the Kurikulum Merdeka [9]. Through the Kurikulum Merdeka, it is hoped that students can develop their potential through quality, expressive, participatory, and critical learning experiences [10].

Several programs issued by the government to support the Implementation of Kurikulum Merdeka (IKM) include the School Movement Program (SP) and the Vocational Center of Excellence (SMK-PK) program. The Ministry of Education supports implementing Kurikulum Merdeka (KM) in these programs. These activities provide valuable experience in implementing KM, contributing to best practices.

Various schools in Indonesia have implemented the Kurikulum Merdeka, supported by government-designed programs. The implementation of the Kurikulum Merdeka in schools after the COVID-19 pandemic has been able to restore the learning environment, boost learning motivation, and develop 21st-century skills among students, such as creative and critical thinking, increased self-directed learning, and strengthening the spirit of collaboration [11]. Another study related to the implementation of the Kurikulum Merdeka in one Indonesian school revealed that the implementation aligns with the standards and guidelines for implementing the Kurikulum Merdeka. This assessment was based on three main aspects: learning planning, learning execution, and learning assessment [12] .

The implementation of this new curriculum presents both challenges and positive impacts. This means that teachers, school principals, and other stakeholders must seek solutions to minimize challenges and maximize positive effects. Therefore, when this curriculum is implemented nationwide in 2024, it can progress the Indonesian education system [13] . Not only in Indonesia, but various Indonesian schools located abroad are also trying to implement the new curriculum, namely the Kurikulum Merdeka. One of these schools is the Indonesian School Kuala Lumpur.

With these programs, they undoubtedly assist educational institutions in Indonesia in implementing the Kurikulum Merdeka. However, what about Indonesian schools located abroad when it comes to implementing Kurikulum Merdeka? As we know, there are several Indonesian schools established overseas, one of which is the Indonesian School Kuala Lumpur (SIKL). Based on interviews with one of the teachers at this school, they state that they are making efforts to implement the Kurikulum Merdeka.

Natural sciences, or science, is an intellectual and practical activity that encompasses a systematic study of the structure and behavior of the universe through scientific processes. This activity provides a learning experience for students to understand how the universe works through an empirical and accountable approach. This understanding can encourage students to solve various scientific problems

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that are ultimately related to social, economic, and humanitarian issues. It shows that science plays a significant role in the lives of students and their surrounding environment [6], [14].

The research aims to identify how the implementation of the Kurikulum Merdeka by teachers at the Indonesian School Kuala Lumpur impacts the quality of education, particularly in terms of academic achievements, especially in the field of science. From the results of this research, it is hoped that it can provide information and serve as a comparison regarding the methods and strategies for implementing the Kurikulum Merdeka in both Indonesia and Kuala Lumpur, Malaysia.

2. Method

2.1. Research Design

This research employs a mixed-method approach utilising an explanatory sequential technique, conducted in two distinct phases. The initial phase is concerned with the gathering and examination of quantitative data, thereby affording a comprehensive numerical insight into the subject matter. The quantitative data facilitates the identification of patterns, trends, and general outcomes pertaining to the implementation of Kurikulum Merdeka in Sekolah Indonesia Kuala Lumpur (SIKL). Subsequent to the quantitative phase, the second stage entails the collection of qualitative data, whereby more detailed and in-depth information is obtained through interviews, observations, or other qualitative methods. The objective of this phase is to provide detailed contextual explanations that enhance and clarify the findings from the quantitative data, thereby offering a more nuanced understanding of how Kurikulum Merdeka is applied in real-world scenarios within the school.

This research project has as its principal objective an investigation and analysis of the implementation process of Kurikulum Merdeka within the context of Sekolah Indonesia Kuala Lumpur. The study seeks to offer insights into the effectiveness of and challenges faced by this curriculum in this unique setting by examining the specific ways in which it is adapted and practiced within the school. A case study methodology was employed for this investigation to allow an in-depth exploration of the specific circumstances surrounding SIKL, thus enabling a comprehensive understanding of the situation. The use of this approach ensured that the research was contextually grounded, offering detailed insights into the implementation process that can inform not only educational practice, but also future research on curriculum reform in similar international schools. [14].

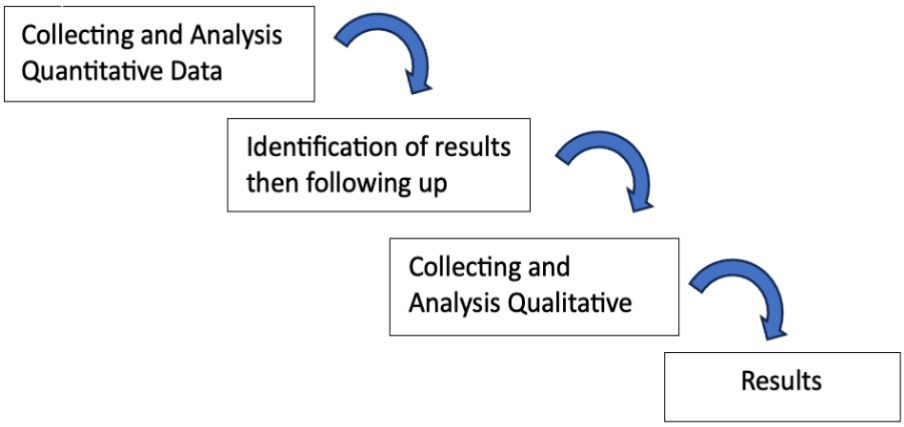

Figure 1.
Research design.

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2.2. Partisipants

We conducted this research at the Indonesian School in Kuala Lumpur, Malaysia. The first phase involved completing questionnaires on the implementation of the Kurikulum Merdeka by 14 teachers from the Indonesian School Kuala Lumpur, representing each educational level and subject. To obtain in-depth information about the implementation of the Kurikulum Merdeka in the field of science, we conducted interviews with three science teachers, including biology, physics, and chemistry teachers.

2.3. Data Collections and Analysis

We conducted data collection in stages based on the research design. At the Indonesian School Kuala Lumpur, the first stage involved the completion of questionnaires by teachers representing each educational level and subject. The questionnaire statements referred to the development of learning objectives, teaching modules, teaching materials, P5 implementation, and P5 implementation challenges.

We then conducted interviews with three science teachers using open-ended questions. The data analysis techniques used in this research were 1) descriptive analysis to analyze the questionnaire responses and 2) qualitative data analysis following the Miles, Huberman, & Saldana (2014) approach for the interview data.

3. Results and Discussion

The results of this research are presented in two parts: first, the presentation of quantitative analysis data on the implementation of the Kurikulum Merdeka, and second, the presentation of qualitative data analysis from interviews with science subject teachers at the Indonesian School Kuala Lumpur.

3.1. Quantitative Data of Implementation of the Kurikulum Merdeka at the Indonesian School Kuala Lumpur

3.1.1. The development of learning objectives flow

The learning objectives flow is a systematic and rational series of learning objectives formulated during the learning process, in order to enable students to achieve these learning outcomes. Properly formulated learning objectives are a crucial factor in improving student learning[15]. Therefore, the development of learning objectives is a crucial task for teachers. Table 1 below shows the percentage of teachers who have formulated learning objectives flow.

Table 1.
Table of the percentage of teachers in developing learning objectives flow.

No	Question	Choices	Percentage (%)
1	Have you formulated the learning objectives flow?	Yes	26.6
		No	71.4

Based on the percentage table of teachers at the Indonesian School Kuala Lumpur, 26.6% of teachers have formulated the learning objectives flow, while 71.4% of teachers have not. Developing the learning objectives flow is crucial in education because it serves as a reference for measuring students' abilities

3.1.2. Teaching Module

The use of teaching modules in the implementation of the Kurikulum Merdeka is crucial. Learning modules can help improve students' thinking abilities [16]. The use of innovative modules with attractiveness and a variety of learning activities tailored to students' abilities can lead to student satisfaction [17]. Self-regulated learning modules are an innovative strategy to enhance student learning outcomes [18]. Teaching modules are tools used to plan a lesson. Module consist of objectives, steps, and evaluations that is used within a specific unit or topic based on the learning objectives flow created according to the learning objectives.

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Table 2.
Teaching module.

No	Question	Choices	Percentage (%)
1	Do you use teaching modules as a reference for lesson implementation?	Yes	35,7
		No	64,3
2	If yes, how do you prepare teaching modules as a reference for lesson implementation?	Develop teaching modules independently, referring to the local context and students' needs	11,1
		Directly use available teaching modules	33,3
		Adapting teaching modules from the Ministry of Education according to the needs	55,6
3	If not, what is the main reason for not using or preparing teaching modules?	The required documents are too detailed	10
		Lessons can still be conducted without teaching modules	20
		Do not have examples of teaching modules	10
		Difficulty in understanding guidelines or examples of teaching module documents	20
		Difficulty in collaborating with other teachers to prepare teaching modules	0
		Concerns about independently developing teaching modules	40

Based on the data above, 64% of teachers have not prepared teaching modules. Furthermore, 55.6% of teachers develop modules by adapting modules from the Ministry of Education. Meanwhile, 40% of teachers who have not developed teaching modules express doubts about developing modules independently. Furthermore, 20% of teachers who don't create modules assert that they can still conduct lessons without them. Another 20% of teachers who have not developed teaching modules mention that they have difficulty understanding the guidelines/examples for creating them. Other teachers who have not developed modules are caused by reasons such as the required documents being too detailed for module development and the lack of examples of teaching modules.

3.1.3. Teaching Material

Teaching materials are essential teaching tools prepared by teachers and are in line with learning objectives. The goal of preparing learning materials is not only to improve cognitive capacity, but also to achieve the highest performance. [19]. The learning process is very dependent on the learning materials used by teachers to help students understand specific material, while for students, this is the basis for developing their skills [20].

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Table 3.
Teaching material.

No	Question	Choices	Percentage (%)
	What kind of teaching materials do you use in learning?	Student's Textbook	85.7
		Teacher's Textbook	78.6
		Student Worksheet	78.6
		Enrichment Book	21.4
		PowerPoint Presentation	78.6
		Electronic learning resources (Website, Youtube, dll.)	100
		Platform of Merdeka Mengajar	28.6
		Other Online Learning Platform (Ruang guru, quipper, zenius, dll)	21.4
		TV/Radio	1

Regarding the types of teaching materials used by teachers at the Kuala Lumpur Indonesian School, the types of teaching resources used by all teachers are electronic learning resources.

The use of technology in learning can save time because it automatically records and monitors student performance. Then, it trains students to take responsibility for their learning, enabling them to make decisions and cultivate self-discipline. The use of technology in education can help students prepare for lifelong learning[21].

Furthermore, around 85.7% of teachers use student textbooks in the learning process. This shows that the use of electronic teaching materials is more popular with many teachers than textbooks. The types of teaching materials that are very underused by teachers are Merka Belajar platforms, and TV/radio broadcasts.

3.1.4. Project To Strengthen the Profile of Pancasila Students (P5)

As part of efforts to achieve the Pancasila student profile, the project aims to strengthen the Pancasila student profile by providing opportunities for students to explore knowledge through experience, strengthening their character, and learning from their environment. Students have the opportunity to explore important topics or issues such as climate change, anti-radicalism, mental health, culture, entrepreneurship, technology, and democracy in implementing this profile project so that they can take concrete action in dealing with these issues according to their level of learning and needs[22] .

Table 4.
Developing p5 project.

No	Question	Choices	Percentage (%)
1	Are you involved in the module development team for the project to strengthen the Pancasila student profile (P5)?	The education unit has not yet developed the P5 module	14.3
		Not involved	35.7
		Involved	50
2	2 Have you taken part in implementing any of the project activities to strengthen the profile of Pancasila (P5) students in the 2022/2023 academic year?	Haven't implemented	7.1
		Already implemented	92.9

This data is used to identify the implementation of projects to strengthen the profile of Pancasila students. Based on the data above, 14.3% said that the education unit (Indonesian school Kuala Lumpur)

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had not developed the P5 module. However, this is contrary to several teachers (50%) who stated that they had been involved in developing project modules to strengthen the profile of Pancasila students. Then 35.7% of teachers stated that they were not involved in developing the project module to strengthen the profile of Pansacasila students. Based on the data above, there are differences of opinion. It is possible that the information related to the development of the project module for strengthening the Pancasila profile in this school has not been distributed evenly to all teachers

3.1.5. Obstacles to Implementing p5

The implementation of p5 is something new in the Indonesian education system. Therefore, in its implementation, there are various obstacles experienced by every teacher at the Kuala Lumpur Indonesian School. Table 5 below presents data of obstacles experienced by teachers in implementing p5.

Table 5.
Teachers obstacle during the impelementation of P5.

Question	Choices	Percentage (%)
What obstacles do you face in carrying out project activities to strengthen the profile of Pancasila students?	Does not have constraint	0
	Limited understanding regarding the concept and implementation of P5	42.9
	Do not yet understand the assessment project activities to strengthen the profile of Pancasila	21.4
	Limited support from the principal	0
	Limited support from foundations (Private schools only)	0
	Limited community/Society support	7.1
	Limitations of DUDI Support	7.1
	Limited parental support	0
	Collaboration between teachers has not gone well	14.3
	Limited infrastructure and budget to implement P5	21.4
	Constraints in managing time/schedule of project activities	71.4
	Student activity	7.1

Based on the data above, there are various obstacles faced by teachers at the Kuala Lumpur Indonesian School. The obstacles most often experienced by teachers are related to "time management constraints/project activity schedules with a percentage of 71.4%. The implementation of p5 must be designed in a structured manner starting from the time of implementation, place of implementation, and duration [23]. Another obstacle experienced by teachers is "limited understanding regarding the concept and implementation of P5 with a percentage of 42.9%.

3.2. Qualitative Data of the Implementation of the Independent Curriculum in Science Learning

Officially, the Kuala Lumpur Indonesian School has not yet perfected the independent curriculum document, but several teachers have tried to start implementing the independent curriculum (Kurikulum Merdeka). At this stage, there are several questions asked to science teachers, namely about 1) understanding the independent curriculum, 2) the actions they take in implementing it, 3) implementation of the independent curriculum in the learning process, 4) module development, and 5) obstacles they experience in implementing the independent curriculum.

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3.2.1. Science Teachers' Understanding of the Independent Curriculum (Kurikulum Merdeka)

Based on the results of data analysis, it shows that science teachers have almost the same understanding regarding the independent curriculum. The answers from each respondent focused on the "learning process". The following is an answer script from each teacher.

P "What do you understand about the independent curriculum?

a. Project Based Learning

R1 *"The independent curriculum emphasizes project-based learning"*

The first respondent saw that the independent curriculum implemented a project-based learning approach. This shows that in the independent curriculum, there is an emphasis on involved and practical learning through projects that involve students. This project-based learning method can help students understand concepts in a more practical

b. Knowledge Does not Only Come from Teachers

R2 "*looks more independent, knowledge is not only from the teacher but is obtained from student experience, in learning using worksheets, case studies and presentations so that the assessment comes from many things.*"

The second respondent provided a more detailed understanding. He revealed that the independent curriculum has a more independent appearance, which may indicate flexibility in learning. Knowledge is not only obtained from teachers, but also from students' experiences. Learning methods such as worksheets, case studies and presentations are used, so that assessments come from various sources. This reflects a more open and diverse approach to learning and assessment.

c. Student Diversity

R3 "*In the learning, the teacher do not equate students in one class, at least we carry out diagnostic assessments from various angles, such as the child's background, abilities and children's interests and they will be given different treatment."*

Based on fragments of each respondent's answer, the changes they feel in the independent curriculum lie in the "learning process". The learning process emphasized in the independent curriculum is project-based learning, students can learn through experience and pay attention to student diversity in the learning process. It was stated that the main point they understood regarding the independent curriculum was related to the "learning process"

3.2.2. Teacher Actions in Implementation of Kurikulum Merdeka

The results of this qualitative data analysis show that science teachers at the Kuala Lumpur Indonesian School have taken several actions with various aspects, namely:

P: "*What have you done to implement the independent curriculum*"

a. Scout Education Approach

R1. "*I have implemented P5, namely scouting education which is carried out every week and implemented a project-based learning model in the learning process"*

Based on the script above, respondents have implemented p5 with a scouting theme. This can of course develop character, skills and positive values.

b. Project Based Learning Model

Not only scouting, respondent (R1) has also implemented project-based learning. This model will certainly help students improve their problem solving and collaboration skills. Implementation of project based learning can improve students' problem solving skills [24]. Also, the project based planning model has a positive impact on students' learning outcomes and collaborative skills [25].

c. As A Fasilitator

R2. "*I was involved as a companion for P5 activities.*"

Respondents have actively participated as companions in extracurricular activities which are P5 activities

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d. Diagnostic Tests And Freedom To Choose Assignments

R3. " I *have carried out diagnostic tests, giving students the freedom to choose the type of assignment they wantt.*

Respondents have carried out diagnostic tests to identify the level of understanding of each student. Diagnostic tests are an effective way of providing instructional information that can be used in the classroom [26], thus having a good impact on the quality and achievement of student learning outcomes.

Apart from that, respondents have also given students the opportunity to choose the assignments they want. In this way, it will give students the opportunity to choose the type of assignment they want to do in order to achieve learning goals that suit their learning style and interests [27]. Providing opportunities for students to choose their own learning can increase internal motivation and teach them to be responsible for their own choices [28].

Based on the results of the analysis above, it can be said that science teachers have taken action with various activities such as scouting activities, implementing project based learning and mentoring in extracurricular activities as an effort to implement an independent curriculum.

3.2.3. Implementation of an Independent Curriculum (Kurikulum Merdeka) in the Learning Process

P What have you implemented in learning as a form of implementing the independent curriculum?

a. Project Based Learning

R1 "project-based learning related to hydroponics"

R3 "project based learning

Respondents emphasized the importance of project-based learning in the context of hydroponic material. This approach involves students in real projects related to the topic. This can help students to be more involved, understand and apply knowledge in practical contexts.

b. Use of Animation

R2 "using animation to make it easier for students to understand the material, providing worksheets"

Respondents noted the use of animation as a tool to facilitate students' understanding of learning material. Animation can be an effective tool in explaining concepts that may be difficult to understand using conventional means. By using animation, students have a positive attitude towards science learning and can improve their understanding of learning material [29]. The integration of 3D and animation in learning has a positive effect on students because it is interesting, entertaining and engaging, so that they appear more enthusiastic about learning and more interested in the subject matter [30]. Apart from that, teachers providing worksheets can also help students to apply what they learn from animation.

From this data analysis, it can be seen that the project-based learning approach is used as the main method in teaching hydroponic material. Additionally, the use of technology such as animation has been implemented to help clarify complex concepts. The combination of the two can create a more interactive and effective learning experience for students in understanding hydroponic concepts.

3.2.4. Module Development

a. Module Development Status

R1 *"I just joint the workshop but I have not yet to create a module"*

Respondents have attended training related to module development but do not have limited time to create modules.

R2. "I still use the worksheet"

The responedent still uses worksheets in the learning process and is probably still in the early stages of developing the module

R3. " I am is still in the process of preparing modules"

Respondents have started developing modules

b. Time Limitation

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R1 indicated that he had not had time to make the module and this was probably due to time constraints after the training.

R2 and R3 did not explicitly mention time constraints, but the use of worksheets (R2) and "still in progress" status (R3) may indicate that they also faced challenges in spending time on module development.

3.2.5. The Obstacle of Curriculum Implementation

P "What obstacles and difficulties have you experienced in implementing KM"?

a. High cost

R1 *"the cost is higher because children have to go outside to study in project implementation"*

Based on the interview results of respondent 1 (R1), the obstacle experienced was an increase in costs for project activities. High costs can be an obstacle to project-based learning activities as a form of implementing an independent curriculum.

b. Difficulty creating ideas

R2 *"we need to have high creativity and have difficulty finding ideas in teaching"*

For R2, the idea of creativity in teaching is an obstacle for teachers in implementing an independent curriculum. There may be a need for additional training to improve teachers' creative skills in designing lessons.

c. Heterogeneous number of students and limited facilities

R3 *"The number of students in one class tends to be more heterogeneous, so you have to get used to dealing with more heterogeneous children, as well as limited facilities"*

Another difficulty or obstacle faced by teachers is that students have different levels of understanding ability, so teachers need to think about appropriate strategies in teaching. Apart from that, limited facilities and infrastructure are also an obstacle for teachers.

Based on the results of interviews with each teacher, basically, each teacher has different obstacles and difficulties in implementing the independent curriculum. Therefore, the school needs to conduct a survey regarding the implementation of the independent curriculum so that the results can be used as material for the school's follow-up to overcome this problem.

4. Conclusion

This research aims to identify the implementation of the independent curriculum in Indonesian schools located in Kuala Lumpur. Based on the results of survey and interview data analysis, officially Indonesian schools do not yet have an independent curriculum document. However, some teachers have tried to implement an independent curriculum in the learning process. Science teachers at Indonesian schools in Kuala Lumpur have implemented project-based learning processes and P5 implementation with various themes. However, in the implementation process, teachers experienced various obstacles such as limited time, especially in developing modules, difficulty finding ideas for teaching, funding, and limited teacher understanding regarding the independent curriculum. In order to enhance the implementation of Kurikulum Merdeka and to address the challenges encountered by teachers, particularly in the field of science education, a number of recommendations have been put forth. Firstly, the Indonesian Ministry of Education should provide official curriculum documents tailored for international schools. It is further recommended that educators receive comprehensive and ongoing training and professional development in order to enhance their understanding of project-based learning and thematic approaches. Schools should facilitate collaboration among teachers with the aim of developing modules and sharing teaching resources. Additional funding is required in order to support these efforts, and it is also essential to implement more effective time management strategies for curriculum planning. Furthermore, encouraging educators to embrace creativity and innovation in the classroom through mentorship and access to resources is a crucial aspect of this process. Lastly, the establishment of a monitoring system for curriculum implementation will facilitate the aggregation of feedback and the implementation of ongoing process improvements.

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