

Research Article

The Challenges of the Kurikulum Merdeka Implementation in 3T Area

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Abstract.

This study investigates the challenges of implementing the Kurikulum Merdeka in the disadvantaged, remote, and outermost (3T) areas of Maluku. The significance of this research lies in addressing the geographic, infrastructural, and educational accessibility issues in these 3T areas, which can hinder the effective implementation of the Curriculum. The research employs a descriptive qualitative methodology. The study engaged 40 respondents, including school principals, teachers from both public and private schools, training facilitators, and assistant program implementers. Data were collected through questionnaires and interviews and were then analyzed to identify recurring patterns, problems, challenges, and obstacles faced during implementation. The results indicate that despite their dedication to implementing the curriculum, nearly all schools struggle with the execution of the Kurikulum Merdeka. The main challenge identified is the inadequacy of teachers in designing and carrying out learning activities as required by the curriculum. This issue arises from various factors, including limited access to technology, insufficient training for principals and teachers, shortcomings in the mentoring mechanisms, and a lack of digital literacy among educators. Consequently, the government's mandate to implement this curriculum in all schools should be preceded by comprehensive preparation. Emphasis should be placed on enhancing teachers' capabilities through training sessions and workshops focused on planning, executing, and evaluating learning activities. Additionally, providing sufficient facilities and fostering a supportive learning environment are essential aspects that must be addressed.

Keywords: implementation, Kurikulum Merdeka, disadvantaged, remote area.

1. INTRODUCTION

Education stands as the most pivotal determinant of both human resource quality and national progress [1]. A well-structured education management system yields individuals equipped with comprehensive and integrated competencies encompassing attitudes, knowledge, and performance, harmonizing with advancements in science and technology. Consequently, education necessitates the support of a viable curriculum, enabling schools to formulate learning plans as instructional frameworks in the teaching and

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learning processes. Numerous studies concur on the paramount importance of the curriculum in fostering civilization and nurturing a high-caliber national generation [2, 3]. Central to this argument is the notion that the curriculum encapsulates all critical components of learning planning, rooted in objectives, instructional materials, and pedagogical approaches, pivotal in realizing learning outcomes

The curriculum is inherently dynamic, shaped by evolving paradigms and educational imperatives over time. This adaptability aims to enhance educational quality and cultivate globally competitive human resources in the succeeding generations. According to Indarta et al., the successful development and refinement of the curriculum hinge on meeting several indicators, including alignment with needs, relevance, flexibility, sustainability, practicality, and effectiveness. Consequently, the curriculum must be grounded in robust foundational principles conducive to attaining educational objectives [1].

According to the current Indonesian education paradigm, education is being developed to accommodate the needs of 21st-century skills, such as critical thinking, creativity, collaboration, communication, problem-solving, and digital literacy. One of the curricula developed by the Indonesian government to improve these skills is a prototype curriculum known as the Kurikulum Merdeka [4]. This Curriculum was developed as a more flexible curriculum framework but still focuses on the essential material and developing the character and competencies of the students (Kemdikbud.go.id). It was further explained that the core of the Kurikulum Merdeka is independent learning. Independent learning means that teachers and students have the freedom to innovate, and the freedom to study independently or in groups [5]. This concept was created to support the process of deepening the interests and talents of each student, which will increase their desire to learn something they like, not because they are forced to. Meanwhile, teachers at the same time can organize varied (differentiated) learning according to student's abilities and learning styles and can adapt to the learning context and local content.

Several studies indicate prerequisite conditions necessary for schools to effectively implement the Kurikulum Merdeka. These conditions include creating a learning environment that facilitates active and definitive student engagement through various technological media and 21st-century skills; empowering teachers to design independent learning processes by optimizing available resources [6]; fostering opportunities within the learning process to enhance students' creativity and critical thinking [1]; fostering a positive and conducive learning atmosphere [7]; fostering collaboration between teachers and students to achieve high-quality learning outcomes [8]; and ensuring that

teachers possess the competence to facilitate independent learning activities, thereby enhancing students' motivation, creativity, readiness, and achievement [8, 9, 10]. There is a recognized need to enhance the role of teachers in exploring students' interests and talents, assisting students in overcoming learning barriers by acting as facilitators and motivating students to achieve better results by fostering positive relationships and providing emotional support [7]. This underscores the Kurikulum Merdeka's emphasis on encouraging teachers to engage in self-reflection on their roles in the learning process, thereby fostering creative and innovative student-centered activities that motivate and harness students' full potential, ultimately aligning with the goals of the Kurikulum Merdeka. Additionally, the presence of the Kurikulum Merdeka is anticipated to promote equitable access to education in Indonesia through affirmative government policies designed to benefit all students, particularly those in disadvantaged, remote, and frontier areas (3T), including the Maluku Province, characterized by its archipelagic geography [11].

It is widely acknowledged that the Kurikulum Merdeka has been in effect for nearly four years. However, there has yet to be a thorough study that fully uncovers the successes and challenges experienced by schools and teachers in applying the curriculum, largely due to various technical issues, particularly in the remote and isolated regions of Maluku. Existing research mainly centers on theoretical analyses of the Kurikulum Merdeka, as highlighted by several studies that have established its conceptual significance [12,13]. Meanwhile, investigations by the Center for Education Policy Research and Education Quality Assurance (Puslitjak Kemdikbudristek), Jakarta State University, and Indonesian Education University show that some teachers continue to face challenges in implementing the Kurikulum Merdeka. Warsihna et al., in their study on the challenges and strategies for implementing the Kurikulum Merdeka in elementary schools in urban areas like Bandung, Bogor, and Surakarta, identified various obstacles related to student readiness, teacher capability as primary facilitators in learning, and the managerial skills of schools [3].

The government intends to roll out the national curriculum prototype to all schools in 2024, following a four-year trial period. This compulsory implementation policy necessitates careful deliberation based on comprehensive evaluation results. Decision-makers, including local governments and schools, need to prepare for this plan with caution. The 2023 evaluation by the Maluku Education Quality Assurance Agency (BPMP) revealed that only a small number of schools in Maluku have adopted the independent curriculum, with a certain percentage being designated as driving schools. These driving schools receive special government support through principal and development team training,

along with development funds. Other schools, however, implement the curriculum independently or through learning communities. The data analyzed primarily provides a quantitative overview of the Kurikulum Merdeka implementation, which explains the increasing number of schools and teachers involved in the implementation but lacks a detailed qualitative description of schools' experiences and challenges faced [14]. This limited trial, involving only a small number of driving and independent schools in Maluku, suggests that many schools, especially those in remote and isolated areas, are not yet ready to implement the curriculum. Many of these schools likely do not fully understand the concept and implementation of this Curriculum. Consequently, a comprehensive study is needed to evaluate the achievements of the curriculum implementation and its impact on school readiness.

Based on initial discussions with several principals of assisted schools from Kepulauan Aru, one of the 3T districts in Maluku Province, it was revealed that they are still experiencing obstacles, especially in applying training materials in schools, particularly in designing planning teaching and assessment modules. This initial data aligns with research results indicating that the implementation of the Kurikulum Merdekain Indonesia still faces several challenges. First, teacher readiness is lacking in implementing the Kurikulum Merdeka [3]. Some teachers may not fully understand the Kurikulum Merdeka and how to teach it, requiring a significant adjustment period. Second, there is a lack of resources available to support the implementation of the Independent Curriculum, including teaching materials, learning tools, or facilities needed to teach according to the Independent Curriculum. Third, there is a lack of support from students' parents, as some may not fully grasp the importance of the Kurikulum Merdeka for their children's development and thus do not provide sufficient support for its implementation [15]. Fourth, there is a lack of coordination between schools in implementing the Independent Curriculum.

All these research findings demonstrate that, although conceptually advantageous, the Kurikulum Merdeka cannot be fully utilized as a lesson learned from its successful implementation due to obstacles encountered by schools, especially in urban areas, requiring attention from the government. This situation is likely to be experienced by schools in various other areas, particularly in Maluku, which has many remote, isolated, and outermost areas (3T). This research therefore aims to delve deeper into the implementation of the Kurikulum Merdeka in senior secondary schools within Maluku Province. The primary focus of the study is to elucidate the obstacles encountered by schools during the trial phase of implementing the Kurikulum Merdeka and to explore the preparatory efforts undertaken after the government mandated the implementation

of the Kurikulum Merdeka across all schools. This research holds significant urgency as it can furnish crucial information to the local government regarding the readiness of schools to implement the Kurikulum Merdeka in the 3T areas, which inherently face challenges due to the geographical characteristics of being an archipelagic country. The insights provided will serve as a valuable reference for designing preparatory initiatives aimed at equipping schools before the mandatory adoption of the independent curriculum.

2. METHOD

The research employed a qualitative approach with descriptive methods. Qualitative methodology is considered an artistic approach because the research process is less structured and is characterized as an interpretative method, as the data generated tends to be related to the interpretation of data collected in the field [16]. The research was conducted from October to November 2023, involving 40 teachers and two facilitators as a sample. The respondents, consisting of 5 elementary school teachers, 10 middle school teachers, and 25 high school teachers from various driving schools across several districts in Maluku, such as Kota Tual, Kepulauan Aru, SBB, Maluku Tengah, and SBT, as well as 2 facilitators.

The data collection techniques utilized in this research included questionnaires, interviews, and documentation studies. The questionnaire, administered to teachers in the form of semi-open and open-ended questions, comprised 30 items related to planning, implementation, assessment indicators, as well as obstacles encountered. The questionnaire was managed via Google Forms. <https://forms.gle/L58oYWHfprkxip8w7>. Interview guidelines are employed to gather information from school instructors/facilitators regarding the implementation of training, the mentoring and training processes, as well as their perspectives on the challenges and obstacles encountered during implementation. Documentation studies were employed to gather supporting data on the proportion of schools implementing the Kurikulum Merdeka in Maluku.

The data analysis technique utilized is an interactive design model that begins with data collection, proceeds to data processing, and ultimately presents the data with valuable insights in a format that is easily comprehensible for readers. For further elaboration, an interactive model of data analysis, as proposed by Miles and Huberman (1992), is presented in the following figure.

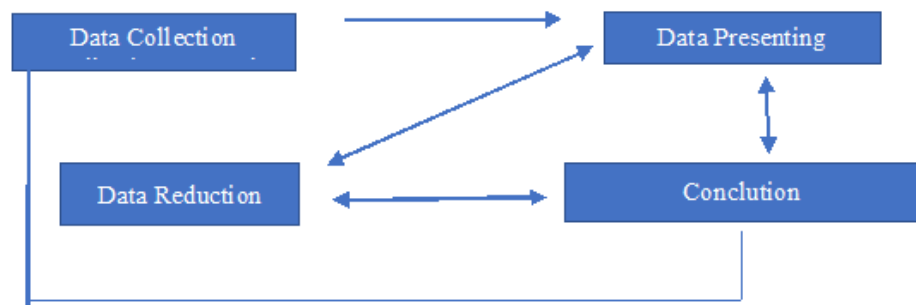


Figure 1: Interactive Model Design Miles and Huberman.

3. RESULTS

The Kurikulum Merdeka aims to facilitate student learning by fostering their development based on individual interests, abilities, potential, and needs. Through the concept of independent learning, the national education system is intended to adhere to legal principles, allowing schools the freedom to interpret curriculum competencies for assessment purposes [17]. Additionally, students are encouraged to actively participate and drive change in the learning process. These responsibilities primarily rest with teachers, who are responsible for ensuring the successful implementation of the independent curriculum. However, numerous challenges arise when introducing such a curriculum in schools located in the outermost, isolated, and frontier (3T) areas of Maluku, which are characterized by their archipelagic nature and inherent vulnerabilities.

3.1. The Comparison of the Total Number of Schools and Teachers with the Number of Driving Schools and Teachers in Maluku

To provide an initial overview, the table below displays the number of Schools and Teachers of primary and secondary schools in Maluku Province.

The data provides an overview indicating that there are a total of 2.927 schools at the primary and secondary education levels in Maluku, comprising 1.816 elementary schools, 700 junior high schools, 290 senior high schools, and 121 vocational high schools. Meanwhile, the distribution of teachers in these schools is as follows: 16.658 elementary school teachers, 9.811 junior high school teachers, 6.451 senior high school teachers, and 2.661 vocational high school teachers.

The data also indicates that the percentage of schools implementing the Kurikulum Merdeka in Maluku is not aligned with the total number of schools. Among the roughly 2927 from all school levels, only 4.646% have adopted the Kurikulum Merdeka.

TABLE 1: Number of Schools, Number of Driving Schools, Number of Teachers, and Number of Driving Teachers at the Elementary School, Junior High School, Senior High School, and Vocational High School in Maluku Province.

No	Schools Levels	Number of Schools	Number of Driving Schools	Number of Teachers	Number of Driving Teachers
1.	Elementary	1816	57	16658	
2.	Junior High	700	42	9811	
3.	Senior High	290	37	6451	551
4.	Vocational	121	-	2661	
5.	All Schools Level	-	-	-	
	Total	2927	136	35581	551

Source: Education Profile Data for Maluku Province. Maluku Education Quality Assurance Agency, 2023.

Additionally, the limited number of facilitator teachers, only about 1.55% of the total number of teachers at all levels, will significantly hinder the dissemination program to other teachers both in schools and learning communities. This greatly affects the achievement of targeted teacher outcomes. This suggests that schools are not yet adequately prepared. Therefore, the government and schools must intensify efforts to disseminate the Kurikulum Merdeka concept and implementation to all schools.

3.2. The Proportion of Schools Adopting the Kurikulum Merdeka in Maluku

As previously explained, from 2020 to 2024, the Indonesian government implemented the Kurikulum Merdeka at the primary to senior secondary schools through driving schools and teachers. The number of schools that have implemented the Independent Curriculum through driving schools can be seen in the following table.

TABLE 2: Number of Schools Implementing the Kurikulum Merdeka in Maluku up to 2024.

No	Schools Levels	Schools of Independent Learning	Schools of Independent Change	Schools of Independent Sharing	Total
1.	Elementary	492	508	36	1036
2.	Junior High	201	290	9	500
3.	Senior High	38	35	4	77
	Total	731	833	49	1613

Source: Education Profile Data for Maluku Province. Maluku Education Quality Assurance Agency, 2023.

The information provided shows that in the 2023/2024 school year, there are a total of 1613 schools across Maluku Province implemented Kurikulum Merdeka in their learning process. These schools consist of 1036 Elementary Schools (SD), 500 Junior high schools (SMP), and 77 senior high Schools (SMA) across 11 districts in Maluku.

Specifically, 731 (45.32%) Schools utilize the curriculum through independent learning programs, where they are given the autonomy to incorporate certain components and principles of the Kurikulum Merdeka addition to the existing curriculum in grades 1, 4, 7, and 10. In addition, 833 (51,4%) schools are categorized as schools that make changes independently, so they have the flexibility to adopt the Kurikulum Merdeka by using the teaching materials that have been provided for the classes mentioned above. In addition, only 49 schools (3,04%) were classified as schools that adopted the Independent Sharing approach, which allowed them to implement the Kurikulum Merdeka by creating their teaching materials for specific grades. However, the data shows that among the three implementation patterns, the number of schools involved in developing their learning materials is the lowest. Despite the availability of sample teaching materials for customization, many schools prefer using the pre-provided materials, which hampers the development of teachers' skills in creating independent learning resources, as they tend to replicate the existing materials.

3.3. The Challenge in Grasping the Concept of the Independent Curriculum Stemming from Insufficient Training and Mentorship

The government has implemented training and mentoring as strategic measures to equip teachers and school principals with a comprehensive understanding of the Independent Curriculum and to support them in managing educational development in line with its requirements. Structured and systematic training and mentoring are essential for teachers and school principals to successfully apply the principles of independent learning in schools. Without proper training, teachers and schools principals are likely to face significant challenges in implementation. The subsequent data will illustrate the training and mentoring approaches adopted by teachers and school principals.

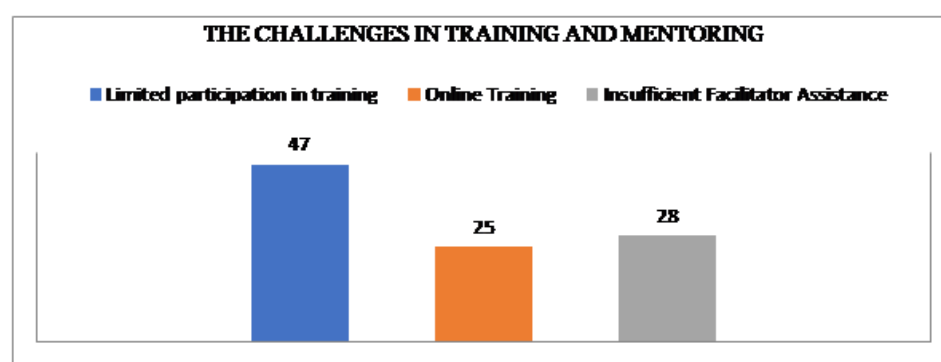


Figure 2: The Challenges In Training and Implementing the Kurikulum Merdeka.

In general, the primary challenge faced by teachers during the training and mentoring stages is insufficient participation in these activities for implementing the Independent Curriculum. A total of 19 teachers (47%) noted that the limited number of training sessions, usually only one or two times, was inadequate for thoroughly understanding and implementing the curriculum. This problem is compounded by the online training format. According to 10 teachers (25%), online training is highly ineffective due to unreliable internet access, network issues, and frequent power outages, which hinder the learning process. The absence of practical opportunities in online training further complicates the application of the concepts learned. Meanwhile, regarding the mentoring, 11 teachers (28%) indicated that the support from accompanying facilitators was suboptimal. Besides the infrequent mentoring sessions, geographical challenges and the limitations of online mentoring reduce opportunities to deepen their understanding of the material.

The data suggest that the current training and mentoring efforts are not optimal. The training is limited in both scope and frequency, mostly conducted online, and primarily involves driving schools, which does not provide a sufficient understanding of the concepts, thereby affecting the teachers' ability to effectively apply them in the classroom.

3.4. The Challenges in the Process of Preparing for Independent Curriculum Implementation

Developing learning plans that cater to the characteristics and needs of students is a core element of the independent curriculum. This process involves a series of preparatory tasks undertaken by teachers before beginning instructional activities. These tasks include analyzing Learning Achievements (CP) according to the student's learning phases, establishing learning objectives (TP) derived through the Learning Objectives Flow (ATP), and conducting diagnostic analyses to determine the subject matter and suitable teaching and learning models. The challenges encountered by respondents at this stage can be summarized as follows:

The data indicates that during the planning phase, teachers face several challenges related to the preparation of TP, ATP, and Teaching Modules. Most teachers, 22 individuals (58%), experience difficulties in creating teaching modules. They lack a full understanding of the components of teaching modules and struggle to adapt to changes, as they still follow the old paradigm of preparing learning plans (RPP). Additionally, 12 teachers (30%) reported specific challenges in preparing the Learning Objectives Flow

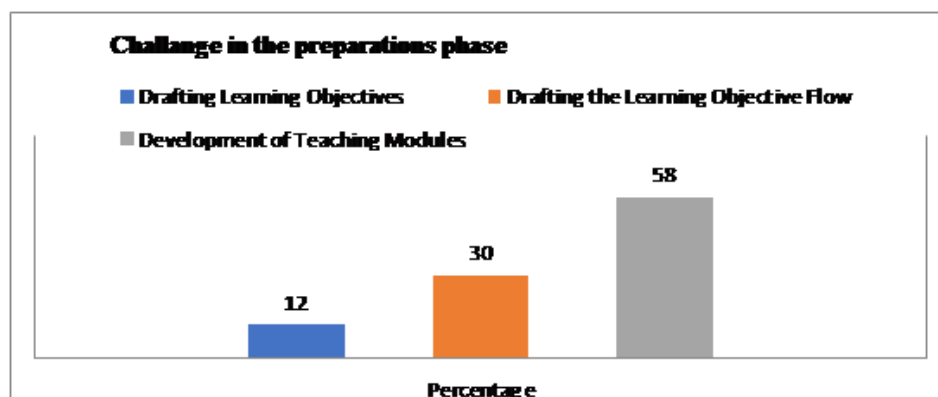


Figure 3: The Challenge in The Preparing and of The Implementation.

(ATP), finding it complex and confusing. The remaining six teachers (12%) stated that they still encounter difficulties in formulating learning objectives.

3.5. The Challenges of Learning Implementation

Conceptually, the independent curriculum requires teachers to manage creative and innovative learning, create a supportive learning atmosphere, and address the characteristics and needs of students. This enables students to determine their learning methods and develop their potential. The data in Figure 4 on the following page explains that most teachers encounter difficulties when implementing differentiated learning in their teaching. More precisely, 24 respondent (60%) still struggle with grasping the concept of differentiated learning and how to implement it effectively in their classrooms. Moreover, eight teachers (20%) mentioned facing challenges in carrying out projects designed to strengthen students' understanding of Pancasila principles. Additionally, four others (10%) expressed challenges in selecting and applying innovative learning models that meet the curriculum standards. Furthermore, another four teachers (10%) encounter obstacles related to the availability of learning resources, citing a lack of reference materials as a significant issue.

3.6. The Challenges in Implementing Assessments

The evaluation process within the Kurikulum Merdeka involves a range of activities designed to determine students' competency levels within its framework. It incorporates three types of assessments: diagnostic assessments, conducted at the beginning of learning to understand students' characteristics and learning styles; formative assessments, which provide feedback to improve the learning process for both teachers and

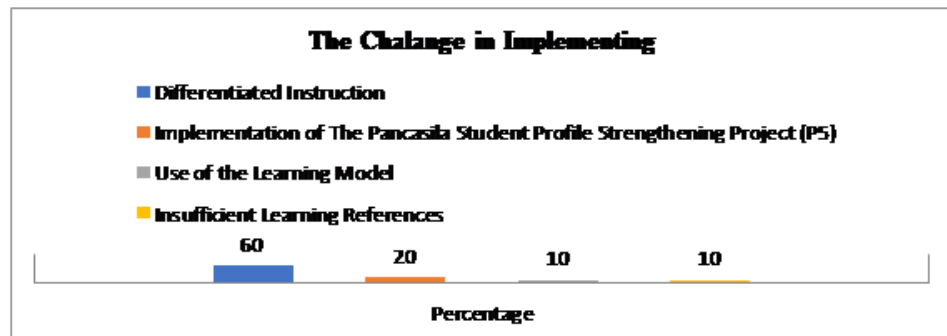


Figure 4: Challenges Faced by Teachers in Implementing Learning.

students; and summative assessments, performed to evaluate the overall attainment of learning objectives. The teacher’s understanding of the principles of preparing and implementing these three types of assessment will significantly aid the evaluation process of student learning plans, processes, and outcomes, thereby ensuring the overall quality of learning. The following data provides an overview of the challenges faced by teachers in conducting assessments.

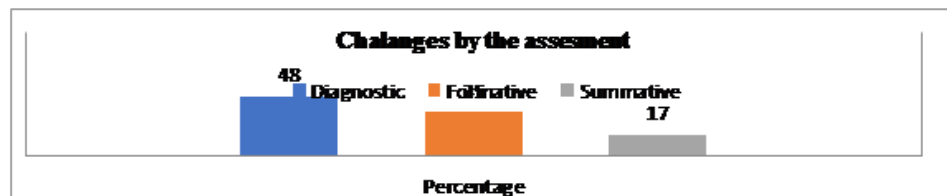


Figure 5: The Challenges Faced by Teachers in Assessment.

The information above suggests that the majority of teachers face challenges in using the three types of assessment throughout the learning process. Of these, 19 individuals (48%) expressed a lack of understanding regarding diagnostic assessments due to misunderstandings about the assessment tools utilized. They believe that the nationally provided questionnaire is overly general and insufficient for effectively measuring the concepts taught in the subjects. Similarly, 14 teachers (35%) encountered difficulties in preparing formative assessments, questioning whether specialized instruments like summative tests are necessary or if non-test methods are appropriate. Furthermore, seven other teachers (17%) acknowledged their lack of understanding in preparing summative questions aligned with the scope of the independent curriculum, particularly in determining whether to assess learning outcomes or learning objectives.

3.7. Implementation Challenges from the Facilitator's Perspective

In addition to the teacher's data, additional information was collected from two facilitators who provided training and assistance to schools and led teachers across several districts in Maluku. The challenges identified include the following: (1) Most teachers struggle to implement educational concepts in line with Kurikulum Merdeka requirements, even though they have participated in both online and offline training sessions; (2) The primary challenge for educational institutions is Learning Planning, which includes determining Learning Outcome (CP), Learning Objectives Framework (ATP), and Learning Objectives; incorporating the Pancasila Profile (P5); identifying innovative teaching methods; developing educational materials; and finding resources suited to student needs and characteristics, along with assessment determination; (3) Teachers face difficulties in creating and applying differentiated learning strategies, often finding it hard to select instructional models that address their students' diverse learning styles; (4) Teachers have trouble using various assessment models, such as Assessment as Learning, Assessment for Learning, and Assessment of Learning, to evaluate learning processes and outcomes; (5) There is a lack of support for information technology-based learning resources and infrastructure in educational institutions; (6) School principals and teachers have not yet created a nurturing learning environment. Traditional study habits remain, lacking innovation and creativity in using available resources; (7) School principals and teachers are still entrenched in the traditional educational paradigm, making it challenging to adopt new, student-centered learning approaches that promote independent student growth; (8) Inadequate skills and competencies of teachers in digital literacy prevented them from effectively using the standalone platform; (9) The online training model that only involves principals and a small number of teachers from the driving school is not only unfair but also ineffective and unlikely to be replicated by both teachers in their own and other schools; (10) Facilitators' offline learning development support is less effective due to the project-based training approach, which lacks more intense opportunities for facilitators to provide proactive support, worsened by geographical challenges; and (11) The lack of follow-up on the results of school performance assessments by the District Plan Management Office or the Provincial Education Quality Assurance Agency (BPMP) has harmed teacher capacity-building efforts.

4. DISCUSSION

The results of the data analysis illustrate that in general, teachers and principals are facing many challenges and difficulties in implementing the Independent Curriculum. The majority of teachers had difficulties in preparing, implementing, and evaluating the learning process, especially in developing the teaching materials. This means that the trial of the Independent Curriculum as a prototype has not yet succeeded in fulfilling the main objective of the curriculum development pattern, which is to provide space for schools to create a learning environment that allows students to independently develop their potential characterized by Pancasila profile through project-based learning. The effort to develop soft skills and character under the Pancasila Profile of students through project-based learning has not been achieved due to the lack of teachers' understanding. According to Arifin et al., the vision of education in Indonesia is to develop student character based on the Pancasila profile [18]. According to Irawan et al., One of the frameworks of education character that is currently being implemented is the Pancasila student profile [19]. This profile covers several competencies which are divided into six main dimensions that are interrelated and mutually reinforcing. To realize the Pancasila student profile, all six dimensions must be developed simultaneously. Therefore, the main challenge that needs to be highlighted in strengthening the Pancasila student profile should be achieved by enhancing teacher comprehension

There are several disadvantages regarding the implementation of the Kurikulum Merdeka that have contributed to the inability of teachers to organize learning as requested by the curriculum. One of them is the training and mentoring model that only involves some driver schools and a limited number of teachers. Data released by the Maluku Education Quality Assurance Agency as the person in charge of the program illustrates that there are only around 1613 schools from about 2967 or around 55.11% of all school levels in the whole Maluku Province, who have implemented the Kurikulum Merdeka in various patterns. This data explains that there are still many non-cover schools that may not have participated in standardized training on the Kurikulum Merdeka. In addition, the data also shows that of those schools that have implemented the Kurikulum Merdeka, only about 49 schools (3.04%) are applying the Independent Sharing approach which allows them to independently develop teaching materials for certain classes. Meanwhile, most schools are given two independent learning options. First, 45.32% of schools are given autonomy to incorporate certain components and principles of the Kurikulum Merdeka in the learning process in certain classes. While

the other 51.4% of schools are given the freedom to adopt the Kuriulum Merdeka by using open teaching materials that have been provided for certain classes.

This scheme of course has the effect of preventing all principals and teachers in Maluku, including the schools in remote and rescued areas, from understanding the concepts and technical implementation of learning as required by the Kurikulum Merdeka. The hopes for a trickle-down effect both for teachers in their schools and for the other schools may hard to be fulfill. The government and schools need to encourage more schools to develop learning materials independently, which is also a challenge in itself. The reason is that the policy of choosing a curriculum implementation strategy for schools by only selecting certain aspects or components of the Kurikulum Merdeka and or adopting teaching materials that are already available is feared to hinder the development of teachers' ability to create independent learning resources. They will replicate teaching materials or teaching modules from the other schools, without trying to make their own based on the school context and student needs.

This was compounded by the perception of some provincial and district policymakers that conducting the prototype curriculum trials was project-oriented. As a consequence, they have focused only on the implementation of the training activities, with insufficient attention to the quality of the training itself. The use of the online training model caused by the budget reason and the inadequate feedback on the problems faced by the schools during the pilot period may be an example of this situation. In addition, the archipelago's geography, along with the disadvantages inherent within it, compounded the situation. The wide expanse of the ocean results in a high degree of isolation in remote island areas and the emergence of various disparities due to the wide control gap between islands, sub-districts, districts, and provinces. As a result, district governments and schools encounter barriers in initiating training and mentoring programs due to limited supporting budgets and transportation facilities.

The data also shows the weakness of the teachers' understanding of pedagogical competencies. The limited training and mentoring provided resulted in many teachers struggling to design teaching modules and develop teaching materials, implement differentiated instructional practices, and conduct assessments that evaluate both the learning process and outcomes, which has led to a weak understanding of pedagogical competencies among teachers. However, according to [20], pedagogical competence requires teachers to facilitate the teaching and learning process, organize class activities effectively to enhance the learning comprehension of the learner, design teaching modules, and be able to apply it in the classroom and evaluate learning processes and outcomes. Another common challenge encountered by teachers in the learning process

is to conduct differentiated learning, which requires attention to detail characteristics of the learner, such as learning styles, learning needs, and supporting learning tools. It is important to prioritize capacity building in designing and implementing differentiated learning through adequate training and workshops involving more teachers from remote areas. The training should be held to scale up the teacher's skills in planning and conducting the diagnostic assessment and use it to design the learning process. Teachers need to be aware that the Kurikulum Merdeka provides flexibility for teachers in implementing differentiated teaching based on students' capabilities as well as adapting to the local context and content. This is in line with Hockings et al.'s perspective, which strongly promotes teachers' ability to facilitate independent learning activities to improve the different aspects of their students' learning [8, 9, 10]. Moreover, according to Tomlinson and Jarvis, differentiated instruction offers a framework for differences in learners' levels of readiness, learning profiles, and interests to optimize the alignment between the learners and learning opportunities [21].

The other problems that teachers faced were conducting assessments, which included baseline assessments to capture background information on students, formative assessments to track the learning process, and summative assessments to measure learning outcomes. Indeed, evidence suggests that teachers may not be fully aware of the importance of assessment in the learning process and how it relates to the educational process. Emphasize that educational evaluation is essential for gathering evidence and data on the achievement of learning objectives [22]. Similarly, Tomasouw and Marantika highlighted the important role of evaluation in the learning process, to point out the effectiveness of their learning methods. Considering the importance of assessment in learning, schools should integrate the assessment design into their training programs as a core element of the educational process [23].

Despite the pedagogical competence challenges as already highlighted, an important point that needs to be addressed is teachers' social and communication skills in facilitating learning activities. Data analysis shows that teachers are struggling to communicate and collaborate with students and parents. As noted by Tamboto et al., teachers in their role as facilitators must be able to maintain communication between the school and stakeholders [24]. Effective communication is crucial to encourage strong collaboration between educational institutions and parents. This is important to ensure that students are receiving a quality education and at the same time can encourage and facilitate personal interactions between parents and teachers. This ability to maintain communication with parents, as required by Kurikulum Merdeka is particularly important, due to the prevailing perception in some communities and parents in disadvantaged

areas in Maluku. They tend to believe that education is the responsibility of the school, especially the teachers. Such a mindset not only reduces their support for children's learning activities but also hinders the teachers' efforts to innovate in developing local-based teaching materials by utilizing the environment. On the other hand, most of the project-based assignments should be done outside of school hours, and the active involvement of parents and the community is needed to effectively monitor independent or group assignments that students have to do.

5. CONCLUSIONS AND RECOMMENDATIONS

This study concludes that the implementation of Kurikulum Merdeka in the most isolated and remote areas in Maluku still has many challenges, such as a lack of understanding and preparedness of teachers, the existence of limited facilities and infrastructure to support IT-based learning, unsupportive learning culture and environment, and the poor level of digital literacy. These challenges have an impact on (1). The readiness of teachers to implement the Kurikulum Merdeka, (2) the difficulties of teachers in designing student-centered learning, (3) the inability of teachers to use a variety of learning methods and strategies that are appropriate to the demands of the Kurikulum Merdeka, and (4) the difficulty of teachers in assessing students' learning outcomes authentically. The recommendations regarding the government's mandate to implement this curriculum in all schools are as follows: 1). The government needs to conduct teacher training and competency development workshops on implementing the independent curriculum. which can reach schools and teachers in the most remote areas in Maluku, 2). Undertake efforts to improve teachers' skills and competencies in designing learning, using and applying different learning methods and strategies, utilizing appropriate technology in the classroom, and assessing student learning outcomes authentically, 3). Schools need to provide adequate support to improve teachers' skills and competencies, such as time and opportunities for teachers to collaborate and share their experiences, 4). Teachers need to actively and creatively explore opportunities and resources to improve their skills and competencies as professional teachers by utilizing the local environment as a learning resource.

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