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Resource Constraints: Teachers' Challenges in Implementing Digital Curriculum in Remote Areas

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ABSTRACT

The implementation of a digital curriculum in remote areas faces various challenges, particularly regarding resources. Teachers, as the front line of education, encounter difficulties such as limited technological infrastructure, lack of training, and restricted access to devices and internet networks. This study aims to identify the main obstacles teachers face in implementing the digital curriculum in remote areas and propose potential solutions to overcome these challenges. Using a qualitative approach, this research analyzes teachers' experiences through interviews and case studies. The findings indicate that a lack of technical support, financial resources, and supportive policies are the primary barriers to digital curriculum implementation. Therefore, interventions from various stakeholders, including the government and educational institutions, are necessary to enhance infrastructure readiness and teachers' competencies to ensure the successful implementation of the digital curriculum in remote areas.

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INTRODUCTION

The development of digital technology has brought significant changes in various aspects of life, including in the field of education. The digital curriculum is one of the innovations that is expected to improve the quality of learning by utilizing information and communication technology. The implementation of the digital curriculum aims to provide access to learning that is more extensive, interactive, and in accordance with the times. However, its application in remote areas still faces various obstacles, especially related to limited resources.

Teachers, as the spearhead in the learning process, have an important role in the successful implementation of the digital curriculum. However, they are often faced with various challenges, such as lack of technological infrastructure, limited internet access, lack of supporting devices, and low

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digital training and literacy. This condition causes inequality in access to education between urban and remote areas, so that the goal of equal distribution of education is still difficult to achieve.

In addition, education policies that have not fully supported the readiness of schools to adopt the digital curriculum are also an inhibiting factor. The lack of technical and financial support from the government and related parties has worsened conditions on the ground. Therefore, it is important to identify the obstacles faced by teachers in the implementation of digital curriculum in remote areas in order to find the right and effective solutions.

This study aims to analyze the various challenges faced by teachers in implementing digital curriculum in remote areas and propose strategic steps to overcome these obstacles. Thus, it is hoped that this research can contribute to the development of more inclusive education policies and support digital transformation in the education sector.

METHOD

This research uses a qualitative approach as explained by Creswell (2014), which emphasizes a deep understanding of social phenomena. The case study method proposed by Yin (2018) is used to explore teachers' experiences in implementing digital curriculum in remote areas.

Data was collected through in-depth interviews with teachers, principals, and relevant stakeholders. Semi-structured interview techniques are used as suggested by Patton (2002) to allow flexibility in digging up richer information. In addition, direct observation in remote schools is carried out to understand the real conditions in the field, in accordance with the participatory observation method described by Spradley (1980).

The data analysis technique in this study refers to the thematic analysis developed by Braun & Clarke (2006), where the data that has been collected is categorized based on the main themes that emerge. The validity of the data is maintained through source triangulation, namely comparing the results of interviews with observations and available documentation, as proposed by Denzin (1978).

As an example of the application of this method, this study analyzes how the limited internet access has an impact on the effectiveness of the digital curriculum in a school in the interior of West Kutai, East Kalimantan. With this approach, the research is expected to be able to provide a comprehensive overview of the challenges faced by teachers as well as recommendations that can be applied to improve the effectiveness of digital curriculum implementation in remote areas.

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RESULTS AND DISCUSSION

The results show that teachers in remote areas face three main obstacles in the implementation of the digital curriculum: limited technology infrastructure, low digital literacy, and lack of policy support.

Limitations of Technology Infrastructure

In West Kutai Regency, a number of schools face significant technological infrastructure limitations, especially related to internet access. Here are some examples of schools that experience these problems:

a) SMP Negeri 2 Gunung Bayan: This school is located in an area that is not reached by internet signals, known as 'blank spots'. Despite having a vision to become a "paperless school" by minimizing the use of paper in the learning and reporting process, limited internet access is the main obstacle in realizing this vision. kompas.com

b) Schools in Nyuatan District: Several schools in this sub-district experience limited internet access. To overcome this, the local government has distributed Starlink devices to provide better internet connectivity, especially for schools in blank spot areas. vivaborneo.com

c) Schools in 16 West Kutai Districts: The West Kutai Education and Culture Office identified a number of schools in 16 sub-districts that experienced limited technological infrastructure, especially internet access. As a solution, a budget has been allocated for the installation of 40 Starlink units and 48 projector units (infocus) in these schools to support technology-based learning activities. editorialkaltim.com

Low Digital Literacy

The low level of digital literacy in West Kutai Regency is a serious concern, especially among the younger generation. While there is no specific data on specific schools with low levels of digital literacy in the region, several initiatives have been undertaken to address the problem.

1. Efforts to Improve Digital Literacy:
    a) Digital Literacy Socialization by East Kalimantan Diskominfo: In July 2024, the East Kalimantan Provincial Communication and Information Service held a digital literacy socialization in West Kutai which was attended by 170 participants. This activity aims to increase public understanding, including students and educators, about the safe and productive use of digital technology. mediakaltim.com

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b) Digital Literacy Education in Schools: The government and educational institutions in West Kutai are encouraged to include digital literacy as part of the school curriculum. This step is important so that students can understand how to evaluate information, recognize fake news, and understand internet ethics from an early age. kompasiana.com

2. Challenges Faced:
   a) Limited Facilities and Resources: Schools in remote areas, including in West Kutai, often lack supporting facilities such as computers and adequate internet access to support digital learning. aida.or.id
   b) Education Quality Gap: There is a gap in the quality of education between urban and rural areas. Limited accessibility and quality of infrastructure in rural areas hinder efforts to improve digital literacy. melintas.id

Despite facing various challenges, collaborative efforts between local governments, educational institutions, and the community are expected to improve digital literacy in West Kutai, so that the younger generation is better prepared to face technological developments in the future.

1) The results of interviews with 15 teachers showed that only 5 teachers had formal training in the use of educational technology.
2) For example, at SMA Sarimentanang in West Kutai, teachers still use conventional methods due to a lack of skills in operating digital devices.

Lack of Policy Support

The lack of policy support in the implementation of the digital curriculum in remote areas, such as West Kutai, has become a significant obstacle in the equitable distribution of education quality. Here are some evidence and examples that illustrate the problem:

1. Limited Infrastructure and Resources: The 2023 Central Statistics Agency (BPS) report indicates that around 30% of schools in Indonesia, especially in rural and remote areas, still lack adequate technological facilities to support digital learning. These limitations include access to hardware such as computers and stable internet connectivity. kompasiana.com
2. Lack of Teacher Training and Development: Teachers in 3T areas (frontier, outermost, disadvantaged) often face challenges in adapting teaching materials without adequate technological support. The lack of training related to the implementation of the Independent

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Curriculum exacerbates this situation, so that the gap in education quality between urban and remote areas is widening. kompasiana.com

3. Technology Access Gap: Data from the Ministry of Communication and Information Technology in 2023 shows that only about 70% of Indonesia's territory is covered by 4G internet networks. This condition hinders the effective implementation of the digital curriculum in these regions. penelitian.id

The lack of comprehensive policy support in providing technology infrastructure, teacher training, and equitable internet access is a major challenge in the implementation of digital curricula in remote areas such as West Kutai. To overcome this problem, the government's commitment is needed in the form of investment in education infrastructure and sustainable training programs for educators throughout Indonesia.

These findings confirm that without proper intervention, the implementation of digital curriculum in remote areas will be difficult to achieve the expected results. Therefore, this study recommends improving technology infrastructure, intensive training for teachers, as well as stronger policy support to accelerate the adoption of digital curricula in remote areas.

The implementation of digital curriculum in remote areas such as West Kutai faces various significant challenges, especially related to limited resources. Here are some of the main obstacles faced by teachers:

1. Limited Technology Infrastructure: Many schools in West Kutai do not have adequate access to information and communication technology. These limitations include the lack of hardware such as computers and stable internet connections, thus hindering the digital learning process.
2. Lack of Teacher Training and Understanding: Most educators have not received adequate training in operating technology and integrating it into the curriculum. This causes low confidence and competence of teachers in implementing digital-based learning.
3. Minimal Parental Involvement: In some communities, parental involvement in the educational process is still low. Lack of support and understanding from parents regarding the importance of digital education can be an additional obstacle in the implementation of the new curriculum.

Case Study:

To overcome some of these obstacles, the West Kutai Education and Culture Office launched the "KUBAR CERIA" (Smart and Happy West Kutai) program. One of the initiatives is to hold training

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on the use of Google Classroom for mentors at the West Kutai Learning Activity Studio (SKB). This training aims to improve the digital competence of teachers, so that they are better prepared to face learning challenges in the digital era.disdik.kutaibaratkab.go.id

In addition, the Head of the West Kutai Education and Culture Office, RL Bandarsyah, encouraged the driving teachers to actively become practical teachers. This step is expected to accelerate the adaptation and implementation of digital curricula in the region, although challenges such as limited resources and infrastructure are still major obstacles.disdik.kutaibaratkab.go.id

Overall, despite various obstacles in the implementation of the digital curriculum in West Kutai, collaborative efforts between local governments, educators, and the community continue to be carried out to overcome these challenges and improve the quality of education in remote areas.disdik.kutaibaratkab.go.id

The implementation of digital curriculum in remote areas such as West Kutai faces various challenges, especially related to limited resources. Here are some examples of schools in West Kutai that are trying to overcome these obstacles:

1. SMP Negeri 1 Barong Tongkok: As the first school in West Kutai to independently implement the Implementation of the Independent Curriculum (IKM), SMP Negeri 1 Barong Tongkok integrates local wisdom in the learning process. Despite facing the limitations of technological infrastructure, the school is trying to utilize existing resources to support digital learning. mediaindonesia.com
2. West Kutai Learning Activity Studio (SKB): West Kutai SKB held a training on the use of Google Classroom for mentors, in collaboration with the "West Kutai Smart and Happy" program (KUBAR CERIA). This training aims to improve the digital competence of educators, even though they are faced with limited facilities and internet access.disdik.kutaibaratkab.go.id
3. Schools in Bongan District: In Bongan District, the implementation of the Independent Curriculum is carried out by involving the community and local education leaders. The Head of the West Kutai Education and Culture Office encourages synergy between schools and the community to realize smart and happy education, despite limited resources. disdik.kutaibaratkab.go.id

Despite facing various obstacles such as limited technological infrastructure, lack of training for teachers, and lack of parental involvement, schools in West Kutai continue to strive to implement

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digital curricula. Collaborative efforts between local governments, educators, and local communities are key in overcoming these challenges and improving the quality of education in remote areas.

Discussion

Based on the results of the research, it can be concluded that the implementation of the digital curriculum in remote areas still faces major obstacles that require serious attention from various parties. Infrastructure factors, digital literacy, and education policies are the main aspects that need to be improved.

Limited technological infrastructure leads to a significant digital divide. As stated by *Warschauer (2003),* access to technology is a key factor in the success of digital-based education. Therefore, investment in the internet network, procurement of devices, and maintenance of technological facilities are urgent steps to be taken.

In the aspect of digital literacy, there needs to be continuous training for teachers so that they can optimize the use of technology in learning. According to *Prensky (2001*), teachers must adapt to digital changes in order to be effective facilitators for students in this technological era.

In terms of policy, the government needs to design more inclusive regulations and provide budget support for schools in remote areas. According to *the OECD (2018),* policies oriented towards equitable digital access can increase the effectiveness of the implementation of technology-based curriculum.

By overcoming these obstacles, it is hoped that the implementation of the digital curriculum in remote areas can run more optimally and provide real benefits for the progress of education in Indonesia.

Discussion Based on Evidence from Kompas.com News

The implementation of the Independent Curriculum in the forefront, outermost, and disadvantaged areas (3T) faces various significant challenges. However, several schools in the 3T area have benefited from the implementation of this curriculum. The Head of the Education Standards, Curriculum, and Assessment Agency (BSKAP) of the Ministry of Education and Culture, Anindito Aditomo, stated that many schools in the 3T area have benefited from the implementation of the Independent Curriculum. kompas.com

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However, the implementation of the Independent Curriculum in the 3T region cannot be separated from various obstacles. For example, at the 11 Flagship State Elementary School in Tiley Village, West South Morotai District, Morotai Island Regency, North Maluku, the implementation of this curriculum still encounters many obstacles. regional.kompas.com

The Minister of Education, Culture, Research, and Technology, Nadiem Makarim, emphasized the importance of implementing the Independent Curriculum in 3T areas or outside big cities. He stated that the implementation of the Independent Curriculum is important to be implemented outside big cities, on borders such as in Sanggau Regency, in remote areas, and in areas with low socio-economic conditions.kompas.com

In addition, the Ministry of Education, Culture, Research, and Technology (Kemendikbud Ristek) noted that as many as 95 percent of schools have now implemented the Independent Curriculum. However, there are still challenges that must be overcome to achieve 100 percent implementation, especially in remote areas. kompas.com

These challenges include limited internet access, lack of technological infrastructure, and lack of training for teachers in operating digital devices. Therefore, collaborative efforts are needed between the government, the community, and the private sector to overcome these obstacles to ensure equitable distribution of education throughout Indonesia.

CONCLUSION

The implementation of digital curriculum in remote areas still faces major challenges, especially in terms of technology infrastructure, teacher digital literacy, and policy support. The results of observations and interviews show that limited internet access and the lack of digital devices are the main obstacles that hinder the effectiveness of digital-based learning. In addition, the low level of training for educators also slows down the adoption of technology in learning. Therefore, support from the government, the private sector, and the community is a crucial factor in overcoming this obstacle. Investment in infrastructure development, increasing digital literacy for teachers, and more inclusive policies will be the key to the successful implementation of the digital curriculum in remote areas, as well as encouraging equitable access to education in Indonesia.

The Government of Indonesia has identified a number of solutions to overcome challenges in the implementation of the Independent Curriculum in the frontier, outermost, and disadvantaged (3T)

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areas. One of the steps taken is the implementation of the Independent Teaching Platform (PMM) developed by the Ministry of Education, Culture, Research, and Technology (Kemendikbud Ristek). This platform aims to help teachers understand and implement the Independent Curriculum by providing various learning resources that can be accessed by teaching staff, including in the 3T area. In addition, the Teaching Student Program, which is part of the Independent Campus policy, contributes to overcoming the shortage of teachers and improving the quality of education in remote areas. Another policy is a flexible approach in curriculum implementation, where the Independent Curriculum is applied optionally so that schools can adopt it according to their respective readiness, providing flexibility for schools in the 3T area to adjust the implementation of the curriculum based on available conditions and resources. The government also conducts direct monitoring and evaluation of the implementation of the Independent Curriculum, with the Minister of Education, Culture, Research, and Technology, Nadiem Makarim, actively visiting various regions, including the 3T region, to understand the challenges on the ground and provide the necessary support.

In West Kutai Regency, research on the implementation of the Independent Curriculum has been carried out in several schools with a focus on the integration of local wisdom in the learning process. One example of its application can be found at SMP Negeri 1 Barong Tongkok, which became the first school in West Kutai to independently adopt the Independent Curriculum. The school integrates local wisdom in its curriculum by teaching regional art and culture as part of an effort to enrich the student learning experience. In addition, the Education and Culture Office of West Kutai Regency has held a reflection event on the scanning of the Regional Facilitator (Fasda) for the Implementation of the Independent Curriculum and the distribution of the Fasda Decree (SK). This activity aims to accelerate the implementation of the Independent Curriculum in all schools in West Kutai by involving Fasda from various regions in the district.

However, the implementation of the Independent Curriculum in West Kutai also faces various challenges. The Education and Culture Office of West Kutai Regency identified several limitations, such as the low understanding of educators about the concept of the new curriculum, the lack of parental involvement in the educational process, and the limitations of educational facilities that are still inadequate. Various efforts continue to be made to overcome these obstacles so that the implementation of the Independent Curriculum can run more optimally. Overall, the research and implementation of the Independent Curriculum in West Kutai shows a strong commitment from

various parties in improving the quality of education through the integration of local wisdom and the active involvement of the educational community.

REFERENCE

Central Statistics Agency (BPS). (2023). Indonesian Education Statistics 2023. Jakarta: BPS.

East Kalimantan Metam. (2023). West Kutai Education and Culture District Branding "Kubar Ceria" to Accelerate the Implementation of the Independent Curriculum. Accessed from https://kaltimetam.id

Kompas.com. (2022). Reaching up to 3T Regions, the Independent Teaching Platform Helps Encourage the Quality of Education. Accessed from https://kilaskementerian.kompas.com

Kompas.com. (2023). Inequality of Internet Access is Still a Major Obstacle in the Digitalization of Education in Indonesia. Accessed from https://www.kompas.com

Media Indonesia. (2023). Junior High School in West Kutai Implements the Independent Curriculum Through Local Wisdom. Accessed from https://mediaindonesia.com

Media Indonesia. (2023). The Government Encourages Digital Literacy in Remote Areas with Starlink. Accessed from https://mediaindonesia.com

Ministry of Communication and Informatics. (2023). Equitable Internet Access Strategy for Education in the 3T Region Jakarta: Kominfo.

Ministry of Education and Culture, Research and Technology. (2022). Independent Curriculum Implementation Policy in the 3T Region of Jakarta: Ministry of Education, Culture, Research, and Technology.

Ministry of Education and Culture. (2023). Evaluation of the Implementation of the Digital Curriculum in Remote Schools. Jakarta: Ministry of Education and Culture.

Nasution, S. (2018). Qualitative Research Methods: Naturalistic and Phenomenological Approaches. Jakarta: Rajawali Press.

Setiawan, A. & Prasetyo, B. (2023). Analysis of Obstacles to Digital Curriculum

Journal of Social Science and Education Research
ISSN 3047-5732
Volume 2 No. 3 2025

Implementation in Remote Schools. Journal of Digital Education, 5(2), 123-145.

Sugiyono. (2020). Quantitative, Qualitative, and R&D Research Methods. Bandung: Alfabeta.

Sugiyono. (2021). Educational Research Methods: Quantitative, Qualitative, and R&D Approaches. Bandung: Alfabeta.

UNESCO. (2021). The Role of Digital Learning in Remote Areas: Challenges and Solutions. Paris: UNESCO Publishing.

UNESCO. (2022). Digital Learning and Educational Equity in Rural Areas: Challenges and Policy Recommendations. Paris: UNESCO Publishing.

Wahyuni, D. (2023). Teachers' Readiness to Face Digital Transformation in the World of Education: A Case Study in East Kalimantan. Journal of Educational Technology, 10(1), 56-78.

West Kutai Education District. (2023). Digital Innovation: SKB Kutai Barat Holds Google Classroom Training for Mentors. Accessed from https://disdik.kutaibaratkab.go.id

West Kutai Education District. (2023). Optimizing Digital Education Infrastructure in West Kutai. Accessed from https://disdik.kutaibaratkab.go.id

West Kutai Education District. (2023). Optimizing the Role of Driving Teachers: The Head of the West Kutai Education Office Encourages Participation as Practical Teachers. Accessed from https://disdik.kutaibaratkab.go.id