

Digital Era Education System at the West Bandung Regency Education Office (*Dynamic Governance Study*)

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Abstract

This study aims to determine how the digital era education system in the West Bandung district education office through dynamic governance study through aspects of the study of responsiveness, adaptivity, increasing capacities, multisectoral collaboration, policy evaluation, reflection and recommendations. This research uses research design descriptive qualitative with methods interviews, observation, and documentation studies where the results of the research will be processed until saturated and find the results of the research. The results show that the digital divide and limited access in remote areas are still obstacles that need to be overcome. Co-operation between the government, private sector and communities is essential to create an inclusive and adaptive education ecosystem. This this research is expected to help in providing an understanding of the education system in the digital era at the Education Office in West Bandung Regency.

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1. INTRODUCTION

Digital-based education is no longer an option, but has become an urgent need in the midst of modern life. The policies taken by the West Bandung District Education Office in order to implement digital learning will be a reflection of how a region can move forward in facing the digital era. The Education Office must have a dynamic government system to adjust to the rapid development of technology. In this case, a dynamic government system plays an important role in supporting the optimal utilisation of technology in the world of education, with the hope of improving the quality and effectiveness of existing learning.

Relevant data related to education in West Bandung Regency shows that there are a number of schools that have implemented digital-based learning. However, there are still many schools that have not been able to fully utilise technology in the teaching and learning process. Based on data collected by the West Bandung District Education Office, there are around 200 schools in the area, ranging from kindergarten, primary school, to junior high school. Of these, around 40% of schools have started to implement digital learning with various facilities available, such as the use of electronic devices, learning applications, and the internet to support the teaching and learning process. However, there are still 60% of schools that have not been able to fully utilise digital technology, due to various obstacles such as limited infrastructure, lack of training for teachers, and limited access to adequate digital devices.

The main problem faced in the implementation of digital learning is the inequality of infrastructure and resources. Many schools in rural areas or areas with limited access still experience difficulties in accessing adequate technology facilities. For example, many schools only have a few computers or digital devices for students to use. In addition, the

gap in teachers' ability to operate technology is a barrier. Digital learning should support the development of teacher and student competencies, but without quality improvements in training and access to technology, this will be very difficult to achieve.

This fact provides the background for why it is important to examine the implementation of a dynamic governance system in education management in West Bandung District. Local governments need to be able to manage and distribute resources effectively to address this inequality. In this context, a dynamic governance system can be defined as an approach that allows the West Bandung District Education Office to be more flexible in responding to changes and needs. By utilising this system, the Education Office is expected to be able to provide more appropriate solutions in addressing various existing problems, such as the fulfilment of technological infrastructure, training for teachers, and faster and more efficient dissemination of information to all relevant parties.

In addition, in the context of dynamic governance, the West Bandung District Education Office must also be able to collaborate with various parties, including higher education institutions, community organisations and the private sector, to create a digital education ecosystem. For example, collaboration with universities or training institutions can accelerate the process of training teachers in the use of technology, so they can be better prepared for the challenges of digital learning. In addition, collaboration with the private sector in providing affordable hardware and software is also needed to ensure accessibility for all schools in West Bandung District.

Another noteworthy fact is the positive impact of digital learning on the quality of education. Various studies have shown that the use of technology in learning can increase student motivation, enrich teaching materials, and improve interactivity in the classroom (Pratama, 2017). This is in line with the objective of implementing digital learning in West Bandung Regency, which is expected to improve the overall quality of education. With a dynamic government system, the process of implementing digital learning can be done in a more planned and measurable manner, so as to minimise the various obstacles that exist.

Education in today's digital era is experiencing rapid development, especially along with the advancement of information and communication technology (ICT). This technology has affected almost all aspects of human life, including the education system. The use of technology in education not only introduces new methods in learning but also creates a more flexible and access-based education model without time and space constraints. One form of such transformation is digital learning, which involves the use of electronic media to support the teaching and learning process (Salam, 2016). Digital learning, often associated with the concept of *e-learning*, offers an alternative solution for learners and teachers to connect and interact *online* through various digital *platforms*. *E-learning* itself refers to various forms of learning that utilise the internet and multimedia technologies such as video conferencing, interactive modules, and web-based learning materials (Fatimah & Risdiana, 2019).

At the regional level, policy implementation that is more focused on local needs is also carried out, one of which is through strengthening cooperation between local governments and internet service providers to expand networks for digital learning. West Bandung Regency, for example, has started to maximise the use of technology to support the implementation of digital learning. They intensify the use of online platforms and provide support for communities that need internet access so that all students can follow (Yusuf, 2020).

In addition, the government also provides flexibility in learning and examination schedules, to accommodate limitations in the community, such as limited network or difficulty in attending lessons at designated hours (Kholifah, 2021). This policy is important

to ensure that every student, without exception, can still learn in a way that is more adaptive to the challenges, be it technical or psychological.

Another policy is to provide access to training and capacity building for teachers. Many regions conduct trainings for educators so that they can adjust to the online platform used, as well as understand how to manage *virtual* classes (Ismail & Lestari, 2020). The government through relevant ministries also communicates intensively with various educational institutions to ensure a smooth transition to online learning, both in terms of materials, delivery methods, and learning evaluation.

Education policy during this period shows the importance of co-operation between the central government, local government and society. The development and utilisation of education technology must be prioritised to maintain the quality of education, despite the dramatic changes in learning. Through the right policies and rapid adaptation, it is expected that this transformation of education can have a positive impact in improving the quality of learning, although challenges in the implementation of digital learning continue to be faced, both in terms of infrastructure, competence, and the readiness of the community itself.

2. RESEARCH METHODS

This research uses a descriptive method with a qualitative approach as a research method. Descriptive research is a writing that describes the true state of the object under study based on the actual situation at the research. Direct research, so that the data obtained is a reflection of the situation. Actually in the field. The data collected are not in the form of numbers, but data derived from manuscripts, interviews, field notes, personal documents, memo notes, and other documents relevant to the object of research. qualitative research principles are naturalistic or natural, meaning that the research field situation is left as it is without manipulation, arrangement, or intervention from the researcher. This research does not test certain hypotheses, but only wants to know the state of the variables independently without systematically connecting one variable with another, so that the research method uses a qualitative approach to obtain an in-depth and contextual understanding of the phenomenon under study. Thus, this research can provide an accurate and comprehensive description of the object under study (Sugiyono, 2019).

3. RESEARCH RESULTS AND DISCUSSION

3.1 Local Government Dynamics in Responding to Changes in the Education System in the Digital Age

The transformation of the education system towards the digital era is an urgent need to deal with the rapid development of information technology. Digitalisation in education includes the use of technology in the teaching and learning process, education administration, and evaluation of learning outcomes. Digitalisation is not only a matter of technology, but also changes in learning methods that are more accessible and interactive.

In Indonesia, the government is trying to encourage this transformation through policies that are in line with the industrial revolution 4.0, one of which is the Digital Learning System during COVID-19. This implementation requires adaptation from regional education offices to provide infrastructure and technology training for teachers and students.

However, challenges such as limited internet networks and digital devices in rural areas still exist. Local governments are allocating budgets to improve technology facilities and internet coverage. In addition, the importance of digital literacy is a concern as students need to be able to understand and evaluate information from digital sources to think critically and creatively.

The government also plays an important role in encouraging relevant local policies, including the development of a digital-based curriculum with the integration of technology into various subjects. However, there are obstacles such as resistance from educators that need to be overcome with continuous training and mentoring to improve digital competence.

Collaboration between the government, community and private sector is necessary to provide learning tools. Free access to online education platforms during the pandemic is a good example of collaboration. However, attention should be paid to equalising digital access to address the gap between urban and rural areas.

Meanwhile, the Education Digitalisation Policy by the Education Office leads to the transformation of the education system to enter the digital era in West Bandung Regency. Digitalisation includes developing infrastructure and increasing the capacity of human resources to support the use of technology in learning. This change is driven by technological developments and the need to maintain the relevance of the education system.

The West Bandung District Education Office has implemented key policies to accelerate digitalisation. One of the key policies is the provision of sufficient technology infrastructure. The local government provides a budget for the procurement of hardware such as computers and tablets for schools in need. Also, internet networks are extended to remote areas to reduce the technology access gap between urban and rural areas, creating equality of access to digital education.

There is serious concern about improving teachers' competence in using technology. Many teachers who are not familiar with technology need to be trained to manage online learning. The education office regularly organises training to improve teachers' digital literacy. These trainings include the use of learning applications, multimedia content creation and online classroom management, which improve teachers' abilities and confidence in improving the quality of learning.

Another important policy is the provision of digital learning materials. The Education Office in collaboration with online education platforms provides modules, learning videos and practice questions that students can access at any time. These are designed to increase students' flexibility and independence in learning, as well as making lessons more interesting and interactive.

3.2 Education System in the Age of Digitalisation (Dynamic Governance)

A. Responsiveness of Education Policy to the Digital Age

The responsiveness of education policy to the digital era is important in West Bandung District. With the advancement of information and communication technology, education in this area needs to adapt. Responsiveness means the local government's ability to respond to changes brought about by digital transformation and make policies that meet the needs of the community.

A concrete example is the implementation of digital learning during the COVID-19 pandemic. The Education Office immediately switched to online learning to keep the learning process running. In addition to moving to online learning, attention to infrastructure, access to technology, and training for teachers and students is needed. The Education Office endeavours to provide devices and internet access for underprivileged students.

Not only that, the Education Office also introduced learning alternatives in areas with limited access, such as using television or radio. Curricula are also adjusted to support digital learning and add digital skills. Learning evaluation is adapting to various creative assessment methods and digital applications. Education management is becoming more efficient through technology-based information

systems. This responsiveness ensures education remains high quality and accessible, despite the challenges.

B. Government Adaptivity to Social and Technological Dynamics

Government adaptivity to social and technological change is key to a responsive education system in the digital era. In West Bandung district, the education office showed high adaptivity, especially during the transition to the digital era. They not only focus on technology but also on managing social changes that affect teaching and learning patterns and interactions between teachers, students and parents.

One clear form of adaptation is the shift from face-to-face learning to digital learning during the COVID-19 pandemic. The Education Office was quick to change policies to support education through digital platforms. This reflects their ability to respond to new ways of education. To support the process, the government provided various online learning platforms and engaged teachers, students and parents.

The government is also addressing social disparities due to unequal access to technology. In limited areas, the Education Office provides technology devices such as tablets and internet quota. For areas without internet access, alternative learning through other media such as radio is introduced. This shows the efforts of the education office to ensure inclusive education.

Changes in communication patterns can also be seen in the interaction between teachers, students and parents, which is now shifting to virtual communication. The education office encourages teachers to actively communicate online. Adaptivity is also seen in curriculum development that is more relevant to the digital era and the introduction of digital skills to students. Learning evaluation is now also more adaptive, adopting flexible methods such as project-based assessment. Overall, the government's adaptivity keeps education effective amidst great challenges.

C. Increased Capacity for Innovation in the Education System

Improving the capacity for innovation in the education system is important for local governments to keep up with social and technological developments. In West Bandung district, the education office has made efforts to encourage innovation in education, including the application of technology, new education management, curriculum development, and teacher and student empowerment.

One of the key measures is the development of learning technologies, especially during the COVID-19 pandemic which has turned digital learning into a mainstream option. The Education Office encourages the use of digital platforms such as online learning apps and video conferencing to improve interaction between teachers and students. In addition, a more adaptive and relevant curriculum was also developed, which emphasises not only theory, but also practical skills needed in the world of work.

The education office also improves teachers' capacity with technology-based training programmes, helping them to use and integrate technology in learning. This effort aims to make teachers more creative in creating interesting learning methods. In addition, there is efficiency in education administration management with a digital-based system that makes it easier to manage student data and provide more accurate information.

Innovation is also seen in more inclusive learning models, such as personalised learning that allows students to learn according to their needs and potential.

Evaluation of learning outcomes is also updated with a competency-based assessment system that is more relevant to digital learning.

Active participation from parents, communities and the private sector is also important in supporting educational innovation. Through this collaboration, it is expected to create a better education ecosystem. Overall, education innovation in West Bandung Regency aims to prepare the younger generation to compete in the ever-evolving digital world.

D. Multisector Collaboration in Promoting Dynamic Governance

Multi-sector collaboration in West Bandung district is important to achieve a sustainable and adaptive education system, especially in the digital era. Various sectors, including the government, private sector, communities and educational institutions, work together to address education challenges and create innovative solutions.

The West Bandung district education office is in charge of coordinating all parties to make responsive education policies. Cooperation with the private sector and other education institutions helps in utilising a wider range of resources and expertise. For example, the education office collaborates with technology companies to provide learning tools and training.

Communities also play an important role, especially parents who are encouraged to be involved in their child's education. The education office provides a digital platform to monitor children's learning progress, strengthening collaboration between schools and families.

Collaboration between education institutions is needed to improve the quality of education. The education office organises forums to share ideas and experiences in technology-based education policies. In addition, collaboration with universities and research institutes is important for the development of effective learning methods.

Collaboration also helps to address social and digital divides, by providing access to technology to students in need. Overall, multi-sector collaboration promotes inclusive, adaptive and technology-based education in West Bandung District.

E. Policy Evaluation Based on Dynamic Governance Principles

Policy evaluation based on dynamic governance principles is very important to measure the success of education policies in West Bandung District. It aims to assess the effectiveness and efficiency of policies in the face of social and technological change. Dynamic governance principles such as responsiveness, adaptivity and multisector collaboration should be applied in every evaluation, which looks not only at short-term results but also long-term impacts on the education system.

In West Bandung district, education policy evaluations are conducted regularly to see whether policies can respond to changes, especially those caused by technological advances and the need for more flexible education. The education office involves various parties, including schools and communities, in the evaluation process through surveys and interviews to collect data on policy implementation, such as digital learning policies and curriculum innovations.

The principle of responsiveness assesses the government's ability to respond quickly to changes in education policy. This includes adaptation to new challenges arising from social and technological changes. The adaptivity evaluation measures

how well the policy can adjust to unexpected situations, such as health crises that affect learning.

Evaluation also includes assessing multisector collaboration, which is important for the success of education policies. Cooperation between the government, the private sector and the community can improve policy effectiveness. Evaluation results are expected to inform local governments to formulate better education policies. Sustainability evaluation is also important to ensure that policies remain relevant and beneficial for future generations. Thus, evaluation based on dynamic governance principles can create an inclusive and flexible education system.

F. Reflections on Education Transformation in the Digital Age

Reflections on the transformation of education in West Bandung district show that changes in the education system involve not only technology but also ways of thinking and learning. This process includes changes to the curriculum, learning methods and the involvement of various parties. With digital technology, education is not limited to classroom interactions but also uses digital platforms that enable long-term learning and broad access to educational resources.

Changing the way of learning is one of the main focuses. Previously, learning in West Bandung relied on traditional methods, with teachers as the main source of information. Now, with digital technology, learning is more diverse through online applications, video conferencing, and other platforms. This provides more flexibility for students and creativity for teachers in delivering materials.

This transformation also increases the accessibility of education. Technology enables more people, including those in remote areas, to access education. Schools in West Bandung are starting to adopt technology-based learning to reach students who find formal education difficult, narrowing the education gap between regions.

However, there are challenges, especially the digital divide, that hold students and teachers back. Not all students in West Bandung have sufficient access to digital devices and the internet. The Education Office needs to work to provide better access and training for teachers and students.

Digital transformation is also changing the role of teachers from teachers to facilitators. Improving teachers' skills in using technology is essential. The education office has organised training to help teachers develop digital skills. This process takes time and commitment from all parties to continuously adapt.

Furthermore, the relationship between teachers, students and parents has also changed. In the digital era, parents are more involved in their children's education. However, not all parents are ready for the changes. Technology-based education policies need to be evaluated continuously to keep up with the evolving needs.

Overall, the transformation of education in the digital era in West Bandung District shows potential to improve education quality and access. However, achieving success requires the support of various parties and collaboration between sectors, as well as continuous policy evaluation. Education transformation is a continuous process with emerging challenges and the education office should strengthen the principles of dynamic governance to create a better education system in the future.

G. Recommendations for Strengthening the Digital Education System

Strengthening the digital-based education system in West Bandung District requires a comprehensive, innovative and sustainable strategy to improve the quality of education and fulfil the needs of the times. Some recommendations that can be considered include:

Firstly, it is important to strengthen the technology infrastructure in schools, including hardware and internet networks. Many schools in West Bandung Regency still face problems with access to digital devices and stable internet connections. Investment in the provision of computer devices, tablets and internet connections for all students and teachers is necessary. The education office can liaise with internet service providers and technology companies for affordable solutions.

Secondly, teacher capacity building is also important. Teachers should attend regular training on the use of educational technology and online learning platforms. The education office can organise training involving educational technology experts so that teachers are more confident in the application of technology. The training should also include how to overcome challenges that may arise during the digital learning experience.

Third, the provision of quality learning materials that are easily accessible to students is essential. The education office should collaborate with relevant parties to develop digital learning materials such as videos, e-books and interactive modules that are in line with the curriculum and real-world relevance. Varied and interesting materials can increase students' learning motivation.

Fourth, collaboration between the government, the private sector and the education community is needed. The education office can establish partnerships with technology companies to provide the necessary devices and training for teachers and students.

Fifth, it is necessary to develop flexible and inclusive learning systems, which can be adapted to the needs of diverse students. Learning should be accessible to all students, despite technical or geographical barriers.

Periodic monitoring and evaluation is also important to determine the extent of the implementation of the digitised education system. The education office should develop a monitoring system to measure the effectiveness of digitalisation policies and programs. Improving digital literacy should also reach parents and communities. The education office can organise digital literacy programmes for parents to support their children's learning at home.

Utilising the data collected from digital learning is crucial for better decision-making. The education office can use this data to adjust education policies so that they are more targeted. With these steps, it is hoped that West Bandung District can strengthen its digital-based education system for the long-term benefit of students and the community.

4. CONCLUSIONS

From the results of the discussion above, it can be concluded that the transformation of education in West Bandung Regency towards the digital era requires a holistic and sustainable approach. The local government through the Education Office has implemented a number of policy strategies to improve technology infrastructure, train teachers in the use of digital education tools and provide quality learning materials. However, challenges such as the digital divide and limited access in remote areas are still obstacles that need to be overcome. Cooperation between the government, private sector and communities is essential to create an inclusive and adaptive education ecosystem. To achieve this goal, recommendations are proposed, including strengthening technology infrastructure, improving teacher training, providing engaging learning materials and developing flexible learning systems. In addition, regular evaluation of policy implementation and improving digital literacy among parents also need to be considered. With these measures, it is hoped that education in West Bandung Regency will become

more relevant and high quality, able to respond to the needs of the times and reduce the education gap between urban and rural areas. This transformation is a continuous process that requires the co-operation of all parties to create a better education system in the future.

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