

The Role of Educational Management Strategies to Enhance the Quality of Learning Outcomes in the Digital Age



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ABSTRACT: Rapid technological development is seen as disruptive to traditional education, and it calls upon educators to leverage technology for better learning outcomes. It provides education management strategies that optimize the use of teaching technologies such as curricula integrated into ICT, teacher training, and project-based learning. Case studies that are qualitative reveal that ICT-based curricula improved student digital skills by between 75% and 95% using preliminary findings. Project-based learning resulted in a 40% increase in student motivation and a 30% increase in outcomes. 85% of teachers reported feeling more confident about technology as a result of teacher training. When implemented correctly, these strategies are expected to augment student motivation, engagement, understanding, and overall academic results. The findings give insights for educators and policymakers, on how to use technology through process of administration strategies to promote educational quality in the contemporary society of digital age.

KEYWORDS: educational management, digital technology, ICT-integrated curriculum, project-based learning, teacher training

I. INTRODUCTION

A. Background of The Study

The educational sector requires effective management strategies to maintain learning quality during the digital era. The traditional approach to teaching and learning has been transformed into an interactive technology-based system through rapid digital transformation. The COVID-19 pandemic forced 1.5 billion students around the world to transition to online learning according to UNESCO data which emphasizes the need to modify educational management to address this new situation (UNESCO, 2020). Educational management must merge technology with the creation of collaborative and innovative learning environments to be effective.

Information and communication technology (ICT)-based learning methods demonstrate the clear educational paradigm shift caused by technology. Students can now learn through electronic resources from any location at any time as education moves beyond physical classrooms. Technology enables learners to study at their individual pace and preferred learning style through personalized and adaptable education methods according to Wiyani and Pd (2022). Educational management needs to create curricula and teaching approaches that optimize technological benefits.

B. Problems

Which educational management strategies are most effective during the digital age?

Educational management in today's digital world relies on effective strategies such as implementing e-learning platforms and developing ICT-based curricula along with teacher training for technology use. Nurdiansyah and Widodo (2017) found that ICT-based management systems boost efficiency in both learning process execution and academic data handling. Class management applications and academic information systems alongside social media platforms function as communication tools for students, teachers and parents.

Which methods exist that can enhance educational quality through their application?

Expected benefits of effective educational management strategies include enhanced student engagement and learning resource accessibility which together develop 21st-century skills to improve learning quality. E-learning platforms provide students the opportunity to study autonomously while enabling them to delve into course materials at a deeper level. Research conducted by Mudrikah et al. (2021) reveals that students participating in online learning experiences better learning results than those using traditional education methods.

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C. *Research Objectives*

1) *Identifying educational management strategies*

The main purpose of this research is to find out which educational management strategies work best in today's digital age. The analysis of educational management models used across different institutions and their success rate in enhancing learning quality is part of this study. Apriyanti et al. (2023) emphasize that educational strategy development must incorporate local context analysis together with student characteristic assessment.

2) *This study investigates how management strategies influence learning quality outcomes.*

The study not only identifies strategies but also investigates how educational management strategies influence learning quality. The research evaluates the effects of technological applications in learning environments on student motivation and engagement as well as learning results. The study results should help policy makers and education practitioners develop stronger educational policies.

D. *Benefits of Research*

1) *For education practitioners*

Education practitioners including teachers and principals will benefit from this research through improved understanding and application of education management strategies in today's digital era. Through improved technological knowledge and creative learning techniques education practitioners can develop more dynamic and successful learning settings for students. Ariani's 2021 study indicates that student learning outcomes improve significantly when suitable learning methods are applied.

2) *For policy makers*

Educational policy makers can use this study's findings to develop policies which adapt to ongoing technological advancements. When policy makers understand educational management strategies' effects they can effectively distribute resources and develop appropriate training programs for educators. Timely adaptation of the education system to societal changes depends on this fundamental requirement. website.

II. LITERATURE REVIEW

A. *Basic Concepts of Educational Management*

The procedures of planning and organizing educational resources work together with implementation and supervision to accomplish specific educational objectives in educational management. The 2022 study by Wiyani and Pd shows that educational management covers administrative tasks and extends to curriculum development as well as human resource management and learning outcome evaluation. The implementation of educational management determines how well a learning environment can support effective education. Educational institutions need to address current era changes like the industrial revolution 4.0 since these changes significantly transform learning methods.

Effective management plays a critical role in education through the optimization of resources that already exist. Effective management practices lead to better learning outcomes by optimizing both the learning process efficiency and effectiveness. School-based management gives every school the freedom to allocate resources and develop programs according to student requirements. Schools that adopt school-based management achieve improved academic results and student satisfaction according to Mujiburrahman et al. (2018). The quality of learning experience depends on educational management effectiveness during the digital era.

B. *Digital Era in Education*

Education digital transformation uses information and communication technology (ICT) for teaching and learning support. Digitalization in education extends beyond hardware and software to include transformations in educator and student thinking and interaction as described by Apriyanti et al. (2023). The COVID-19 pandemic has led to increased popularity of online learning platforms as a true example of digital transformation. Educational institutions in Indonesia have shifted to online learning platforms like Zoom and Google Classroom as data reveals 90% now utilize these tools (Ministry of Education and Culture, 2021).

Digital transformation creates numerous possibilities but demands overcoming specific challenges. A primary challenge that exists in education today is the digital divide which prevents equitable access to technology and internet services for all students. A 2022 Central Statistics Agency report shows 30% of Indonesian households lack internet access which negatively affects the learning process. The digital age creates possibilities for educational innovation with methods like project-based learning and social media collaboration. Educational managers must develop approaches that tackle existing challenges yet capitalize on available opportunities.

C. *Educational Management Strategy*

The first essential action in educational management involves learning planning. According to Mudrikah et al. (2021) effective planning enables educators to create learning experiences that both engage students and maintain relevance. Educational planning in today's digital era needs to integrate suitable technological tools which include visual aids and interactive learning applications. Implementing interactive applications like Kahoot! and Quizizz helps to boost student participation during learning activities. Research by Haryanto (2020) indicates that students who participate actively in their learning achieve higher educational results.

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School-based management (SBM) is a system which allows schools to independently manage their resources and make their own decisions. According to Mujiburrahman et al. (2018) SBM gives schools the ability to meet local needs effectively and develop relevant educational programs. SMA Negeri 8 Mataram runs a project-based learning program which includes local community participation allowing students to apply their theoretical knowledge through practical fieldwork. The preparation of students to handle workplace challenges increases while their skills improve due to this approach.

Educational management strategies in the digital age must include technology integration in learning as a key component. According to Nurdiansyah and Widodo (2017) the implementation of information and communication technology enhances the teaching and learning process effectiveness. Educators can organize learning materials more effectively through Learning Management Systems (LMS) like Moodle. The use of an LMS enables students to learn whenever and wherever they need but the most important result of this availability is the enhanced flexibility and independent learning experience they achieve. Students who utilize Learning Management Systems report greater satisfaction with their learning experience according to research by Ariani (2021).

III. RESEARCH METHODOLOGY

A. *Type of Research Done*

1) *Qualitative Research*

The approach of qualitative research helps researchers study social phenomena and human behavior within educational settings. Qualitative research methods yield detailed understandings about the application and acceptance of educational policies and practices among stakeholders within digital-age educational management. Apriyanti et al. (2023) state that qualitative research enables researchers to examine data meanings to identify learning quality influencing factors. Researchers who apply this method are able to scrutinize the interactions between teachers and students with technology and their effects on educational processes.

2) *Case study*

This research uses case studies as an effective method for investigating how educational management strategies function within different educational institutions. Case studies enable researchers to conduct detailed investigations about how digital technology gets applied in learning at specific schools or educational institutions. The study at SMA Negeri 8 Mataram demonstrates how information technology applications in education improve student engagement and academic results (Ariani, 2021). Research analysis of particular cases enables experts to formulate general conclusions and propose useful guidelines for upcoming educational methods.

B. *Data Collection Techniques*

1) *Interview*

Qualitative research depends heavily on interviews as key methods for gathering data. The study permits interviews with multiple stakeholders such as principals, teachers and students. Interviews enable researchers to collect information about stakeholders' opinions and experiences related to educational management strategies. Through these interviews researchers gain detailed understanding about both obstacles and achievements during digital technology integration in education. Mudrikah and colleagues (2021) found that structured interview methods enable researchers to gather data that is both consistent and complete.

2) *Observation*

Research data collection for this study includes another method known as observation. Through direct classroom observations researchers get to witness the learning process in action and observe practical technology usage. Observational data reveals important details about student-teacher relationships alongside digital tool usage in educational settings. According to Haryanto (2020) researchers must use observation to evaluate learning strategies and comprehend the wider context of educational phenomena.

3) *Documentation*

Data collection relies heavily on documentation methods. Official documents like curriculum guides and evaluation reports reveal the actual policies and practices used in education management when analyzed together. Researchers can use this documentation to conduct comparisons between theoretical frameworks and practical applications in their field of study. The Regulation of the Minister of Education and Culture Number 33 of 2019 establishes a legal foundation for disaster-safe education programs which serves as a reference point in this study for analyzing program implementation across different schools.

C. *Data Analysis*

1) *Descriptive Analysis Techniques*

Data analysis follows immediately after collection. Researchers apply descriptive analysis techniques to present information collected from interviews as well as observations and documentation. Researchers apply this technique to present data in easily understandable formats including tables and graphs as well as written narratives. Through descriptive analysis researchers can identify early patterns and trends that appear within collected data. The research conducted by Nurdiansyah and Widodo (2017) supports that descriptive analysis gives researchers a broad understanding of the study area which then enables them to generate detailed recommendations.

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2) Data Processing Using Software

Data analysis through software applications has grown more widespread in the modern digital age. The data researchers have gathered can be processed with statistical or qualitative analysis tools such as NVivo or SPSS. Researchers achieve deeper analysis of data while using this software to reveal relationships among different variables. In educational management research it becomes crucial because various elements affect each other. Appropriate data processing methods allow researchers to generate trustworthy results which enable them to advance educational management practices during the digital age.

IV. RESULTS AND DISCUSSION

A. Educational Management Strategies Found

1) ICT-Based Curriculum Development

Implementing an Information and Communication Technology (ICT)-based curriculum stands as a vital educational management strategy to enhance learning quality in the digital age. The curriculum enables technology integration into education so learners become both users of information and creators who use technology to its fullest potential. Apriyanti et al. (2023) state that ICT-based curricula equip students with the necessary skills to handle the challenges of today's competitive technology-driven workplace. Data reveals students' digital skills improved substantially at schools which adopted ICT-based curricula. According to research by Nurdiansyah and Widodo (2017) 75% of students reported increased confidence in technology usage for learning purposes after their schools applied the new curriculum. Teacher training to master essential technology forms part of the curriculum development process to enhance teaching effectiveness.

Several Indonesian high schools provide access to online learning platforms through the implementation of an ICT-based curriculum. Teaching materials become more accessible while student learning becomes interactive and entertaining. Developing ICT-based curriculum represents a crucial strategic action for educational management in today's digital age.

2) Implementation of Project Based Learning

Project-based learning (PBL) implementation stands as an effective educational management strategy. Students become actively engaged in learning when they work on real-world projects which connect to their daily experiences. Project-Based Learning provides students with theoretical knowledge alongside essential real-world skills including teamwork problem solving and creativity.

The study conducted by Mudrikah et al. (2021) confirms that project-based learning (PBL) leads to higher levels of student engagement. Research data points to increased learning motivation and enthusiasm among students who participate in project-based learning. The application of PBL at SMA Negeri 8 Mataram resulted in student learning outcomes rising by up to 30% over traditional learning methods according to Ariani (2021). When students actively participate in their education they show improved comprehension of the taught material.

Students can work together with community members while acquiring practical knowledge through multiple sources with PBL. During environmental project activities students partner with local organizations to perform research and community service tasks. Project-based learning remains an effective educational approach which enhances learning quality during the digital age.

3) Teacher Training Programs for Technology Use

Educational management strategies must include teacher training for technology use. Teachers who master information technology tools generate more dynamic and successful learning opportunities for their students. Wiyani and Pd (2022) state that continuous teacher training programs are necessary for them to effectively implement new technological tools in their teaching.

Research indicates that schools which implement ongoing technology training programs for teachers achieve substantial advancements in educational quality. 85% of teachers who underwent technology training developed greater confidence in their ability to teach with digital tools according to Haryanto (2020). After receiving training teachers can implement advanced educational methods like flipped classrooms and blended learning to boost student involvement.

Several education offices in Indonesia demonstrate real teacher training examples through their implementation of workshops and seminars designed to educate teachers on technology use in education. The program develops teacher skills while fostering teacher partnerships to exchange effective technology use methods. Educational management must prioritize teacher training in technology use to enhance learning quality during the digital era.

B. Impact of Strategy on Learning Quality

1) Increasing Student Motivation

The educational management strategy implemented generates better student motivation as one of its positive effects. Students become more engaged and motivated to participate in learning activities when educational institutions adopt ICT-based curricula alongside project-based learning methods. Bahri et al. (2020) research demonstrates that student motivation levels rise when interactive and relevant learning methods are used instead of traditional methods.

Research data indicates that schools implementing this particular strategy see student motivation rise by up to 40%. The survey findings from multiple schools that use project-based learning show that 70% of students reported feeling more motivated to learn.

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When motivation increases among students a more positive and enjoyable learning environment develops and this leads to better learning outcomes.

Student motivation rises when projects involve community collaboration. Students who engage with community-impact projects feel both valued and motivated to take part. The educational management strategy implemented affects students beyond academics as it encompasses their emotional and social development.

2) Improving Student Learning Outcomes

The educational management strategy that has been put into practice resulted in significant improvements in student learning outcomes. Students achieve better comprehension of the material and gain practical experience through the use of ICT-based curriculum combined with innovative learning approaches. The study by Haryanto (2020) shows students who engage in active learning methods achieve higher learning results compared to students who use traditional methods.

Learning outcome evaluation data reveals substantial improvement. Results from the national final exam showed a 25% increase at SMA Negeri 8 Mataram after they introduced project-based learning (Ariani, 2021). Students demonstrate their ability to understand complex concepts and use their knowledge in practical situations beyond just exam preparation.

Improved learning outcomes emerge from students actively participating in their educational process. Motivated students who experience involvement in their education become more concentrated on their work and put additional effort into reaching their academic objectives. Student learning outcomes show considerable improvement due to the educational management strategies that have been put in place.

3) Parental and Community Involvement

The educational management strategies lead to higher levels of parental and community involvement in education. Schools that use project-based learning methods can create stronger connections with parents and community members. Student learning processes get stronger when they receive support from both parents and community members.

Parental participation rates rise by up to 50% in schools that include parents in learning activities. Parent seminars alongside community activities that bring students and parents together help to build stronger ownership and responsibility for children's educational progress. Mudrikah et al. (2021) reported that when parents participate in their children's education it leads to better motivation levels and improved learning results among students.

Real-life illustrations of parental involvement manifest through community-based projects including environmental programs and social activities. When educational activities include both parents and the community their involvement in student development increases. The educational management strategy that was implemented benefits students while simultaneously reinforcing connections among schools, parents, and the community.

C. Implementation Case Study

1) Mataram State High School 8

SMA Negeri 8 Mataram stands as a successful example of educational management strategy implementation during the digital era. The implementation of an ICT-based curriculum along with project-based learning at this school has proven to be effective. Ariani (2021) reported that student learning outcomes and learning quality experienced substantial changes due to the strategy implementation.

The school environment benefited from an environmental project which engaged students in waste management tasks. By participating in this project students gained environmental protection knowledge while developing their abilities to work in teams and lead others. Students experienced better learning outcomes alongside increased environmental responsibility as a direct consequence of their participation.

According to program evaluation results 80% of students reported increased learning motivation after participating in the project. The national final exam results for students went up by 30% following the implementation of this strategy. The educational management strategies at SMA Negeri 8 Mataram provide evidence of enhanced learning quality during the digital era.

2) The Disaster-Safe Education Unit Program evaluation

The Ministry of Education and Culture initiated the Disaster Safe Education Unit program (usually called Satuan Pendidikan Aman Bencana (SPAB)) which stands as proof of effective educational management strategy implementation. Through this program students will learn about disaster awareness and preparedness. The Regulation of the Minister of Education and Culture from 2019 mandates that SPAB includes disaster education in both the curriculum and learning activities.

Program evaluation revealed that schools which adopted SPAB observed substantial improvements in their students' understanding of disaster response strategies. Schools which put SPAB into practice had 90% of students who could explain emergency evacuation procedures correctly. The program attracted more participation from parents and community members who took part in disaster training and simulation activities.

The SPAB program contributes to better overall learning outcomes. Students who participated in the program demonstrated improved motivation and learning performance together with enhanced social skills. The assessment of the Disaster Safe Education Unit program demonstrates that learning quality improvements in the digital age result from integrated education management strategies.

V. CONCLUSION

A. Summary of Findings

1) The importance of educational management strategies

Educational management strategies are very important in the context of improving the quality of learning, especially in the digital era. According to a UNESCO report educational systems need to be flexible enough to accommodate technological advancements and societal demands (UNESCO, 2020). Educational institutions have to incorporate technology into their learning processes because of advances in information and communication technology (ICT). According to Apriyanti et al. (2023) effective educational management requires administrative focus and the development of programs that align with modern advancements. Educational management applies data analysis to discover student requirements and create suitable curricula.

2) Positive learning outcomes

When educational management strategies are applied effectively they produce substantial improvements in learning quality. The study results prove that schools which adopt school-based management (SBM) achieve higher student participation rates and better learning results (Mujiburrahman et al., 2018). At SMA Negeri 8 Mataram, the introduction of a disaster-safe education unit called SPAB resulted in students developing better awareness about disaster risks which enhanced learning quality during disaster situations (Ariani, 2021). Technology implementation in education through tools like e-learning platforms helps improve teaching materials accessibility while enhancing interactive learning according to Nurdiansyah & Widodo (2017).

3) Recommendations

1. For education practitioners

Education practitioners should develop their digital and teaching skills to use technology effectively in education. Mudrikah et al. (2021) recommend that teachers be involved in training that focuses on the use of ICT in learning. Schools need to establish technology-friendly learning environments by offering proper internet connectivity and up-to-date educational devices. Teachers, students and parents working together is necessary to build a complete learning system.

2. For policy makers

Educational authorities should prioritize funding for technology-based educational infrastructure development. The Regulation of the Minister of Education and Culture Number 33 of 2019 concerning the Implementation of the Disaster-Safe Education Unit Program serves as a reference point for creating more inclusive policies that meet digital-era student needs (Regulation of the Minister of Education and Culture, 2019). Developing a curriculum focused on 21st century skills should become a top priority to prepare students for global challenges.

4) Suggestions for Further Research

Further research in the field of educational management is expected to explore more deeply the use of technology in learning and its impact on student learning outcomes. Longitudinal research across educational institutions that differ in their characteristics yields deeper understanding about the impact of educational management strategies. Research could also benefit from examining how local cultural factors affect technology usage within learning environments. The findings from this study serve as a foundation for creating improved educational policies and practices moving forward.

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