

Educational Institution Management Innovation and Technology-Based Learning Design for Strengthening

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Abstract

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Emergencies such as the COVID-19 pandemic have driven fundamental transformations in the education system, including in institutional management and learning design. The emergency curriculum is present as an adaptive solution to ensure the continuity of education in crisis situations. In this context, education management innovation and the use of technology in learning are the main keys to strengthening the curriculum. This study aims to examine the contribution of educational institution management innovations and technology-based learning design in supporting the implementation of emergency curriculum. The method used was a literature study of some scientific articles from Google Scholar. The results of the study show that managerial innovations such as digital leadership, adaptive governance, and stakeholder synergy greatly affect the effectiveness of the emergency curriculum. Meanwhile, the use of Learning Management System (LMS), interactive media, and digital assessments has been proven to increase the flexibility and sustainability of the learning process. This study provides a conceptual and practical foundation for designing future emergency response education policies and strategies.

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1. Introduction

The global COVID-19 pandemic that hit in 2020 has created a multidimensional crisis that has permeated various sectors of life, including the education sector. The impact was so great that it forced educational institutions around the world to stop face-to-face activities and quickly look for learning alternatives that could be accessed remotely. In Indonesia, the response to this situation is manifested in the implementation of an emergency curriculum as a form of adjustment to the 2013 Curriculum. This curriculum is designed to simplify learning content and provide flexibility to educational units in developing lesson plans according to local conditions, resource availability, and student capacity (Haryadi & Mahmudah, 2021). However, the effectiveness of the emergency curriculum is highly dependent on the support of educational institution management innovation and learning design that is adaptive, inclusive, and based on digital technology.

The management of educational institutions in crisis situations can no longer depend on bureaucratic and conventional approaches. Instead, a transformation is needed towards a more *agile*, responsive, and collaborative approach. Principals, supervisors, and education managers play a crucial role in ensuring the sustainability of the learning process during emergencies. Managerial innovation encompasses various aspects, ranging from strengthening digital leadership, data-driven decision-making, adaptive internal policy formulation, to cross-sector collaboration with parents, communities, and local governments. A study by Hermawansyah (2021)

shows that schools that have integrated digital-based management systems have a faster ability to respond to educational disruptions due to the pandemic.

On the other hand, learning design that utilizes digital technology is the main foundation in the implementation of the emergency curriculum. The use of technology allows the learning process to continue to take place in an interactive and structured manner, even in situations of physical restrictions. Platforms such as Google Classroom, Moodle, Zoom, and even WhatsApp have become the main tools in delivering learning materials online. In addition, the implementation of digital assessments, learning videos, and virtual discussion forums is also an important part of the new learning strategy (Arizona et al., 2020). Research by Mukhlisin (2021) shows that students who follow learning through a technology-based blended learning approach show a higher level of learning engagement compared to pure online learning.

However, digital transformation in education brings its own challenges. The digital divide, especially in the 3T (disadvantaged, frontier, and outermost) areas, is a serious obstacle in the equitable distribution of access to education. In addition, many educators face difficulties in operating technology, both due to low digital literacy and limited training available (Budiman, 2021). Research by Surahman et al. (2020) highlights that there are still many teachers who experience psychological obstacles in using technology, such as fear of being wrong, lack of confidence, and digital fatigue due to increased workload pressure. Therefore, institutional policy support and ongoing training are essential.

In addition, the aspect of institutional readiness in designing a digital-based monitoring and evaluation system is also a determinant of the success of the emergency curriculum. In a study by Putra and Wijaya (2019), it was stated that institutions that are able to integrate a comprehensive online evaluation system show a more measurable and efficient quality of learning. This shows that technology-based learning design is not only about media and platforms, but also includes careful pedagogical planning and an integrated management system. Based on this description, this study aims to comprehensively examine the contribution of innovation in the management of educational institutions and technology-based learning design in strengthening the implementation of emergency curriculum during the pandemic. The study uses a literature review approach to various scientific publications from 2017 to 2022. The main focus lies in how educational institutions carry out managerial and pedagogical innovations in dealing with emergency situations, as well as their implications for learning quality, educational sustainability, and readiness to face similar crises in the future.

2. Literature Review

Several previous studies have shown that education management innovation greatly determines the effectiveness of the implementation of alternative curricula such as the emergency curriculum. According to Nugroho (2021), an adaptive managerial approach can strengthen institutional responsiveness to education crises. In practice, successful management strategies generally include contingency planning, resource redistribution, and strengthening communication systems

between stakeholders, both internal and external. This is in line with the findings of Rachmadtullah et al. (2020) which underscore the importance of leadership skills in creating a stable and supportive learning environment during times of disruption.

Meanwhile, innovations in technology-based learning design have become the main solution in maintaining the learning process during emergencies. Rahmi (2020) said that teachers are required to design teaching materials that are not only informative, but also interactive and contextual, in order to be able to answer students' learning needs in limited conditions. The use of digital technology allows for project-based learning, blended learning, and flipped classroom approaches. However, the success of technology implementation is not only determined by the availability of digital devices, but also by the readiness of infrastructure, the level of digital literacy of educators, and policy support from local education authorities. According to Wuryaningtyas and Setyaningsih (2020), the integration of technology in learning will be effective if it is accompanied by improving teacher competence through continuous training and facilitating equitable digital access.

The correlation between innovative management and technology-based learning design is evident in the context of implementing an emergency curriculum. That schools with strong leadership in the digital field are able to integrate online learning effectively, even when facing limited resources. Furthermore, educational institutions that have developed technology-based management systems tend to be more flexible in adapting teaching strategies according to local conditions and student needs. This is also emphasized by Priyanto and Ag (2020) who note that the synergy between progressive managerial policies and technology-based learning

designs can create an education system that is resilient to sudden changes. Therefore, it is important for educational institutions to develop crisis management capabilities and ensure that technology integration is not only a means, but part of a sustainable learning strategy. This approach is the foundation for the creation of an education system that is not only adaptive to the crisis, but also progressive in the face of the ever-growing era of digitalization.

3. Methods

This study uses a qualitative approach with a literature review method. The purpose of this approach is to analyze and synthesize various previous research relevant to the theme of educational institution management innovation and technology-based learning design in supporting the implementation of emergency curriculum. The literature study method was chosen because it provides flexibility in understanding the phenomenon in depth through the study of various available academic sources. In addition, this method also allows researchers to explore trends, patterns, and conceptual contributions of various scientific publications in the context of education policy in times of crisis. The data sources in this study were obtained by searching scientific articles on the Google Scholar search engine using a combination of keywords such as “education management during a pandemic”, “emergency curriculum”, “online learning”, “educational technology”, and “learning innovation”. Researchers set strict inclusion criteria to ensure the relevance and quality of the literature analyzed. The inclusion criteria include: articles published in accredited journals; written in Indonesian or English; and substantially relevant to

issues of education management, learning technology, and emergency curriculum policies.

From the results of the search, as many as 13 scientific articles were selected purposively for in-depth analysis. The data analysis process was carried out with a thematic approach, which aimed to identify patterns, main themes, and relationships between concepts in the literature studied. The analysis stage includes critical reading of all articles, recording important citations, formulating summaries of each key findings, and preparing thematic synthesis based on topics such as education management models in times of crisis, online learning design strategies, forms of technological innovation used, and challenges and solutions in the implementation of emergency curriculum.

To ensure the credibility of the analysis results, the validity of the content of each article is examined by paying attention to the relevance of the substance to the focus of the study. Articles that are opinionated without a strong empirical or methodological foundation are excluded from the analysis. The researchers also compared the results of various studies to avoid interpretation bias and reinforce the objectivity of the findings. The results of the final synthesis were used to compile a conceptual narrative that describes the relationship between managerial innovation and digital learning design in supporting the effectiveness of emergency curricula during the pandemic. With this method, it is hoped that a comprehensive understanding of best practices, the most significant challenges, and strategic recommendations can be used as a reference in the development of adaptive education policies in the future.

4. Results and Discussion

The results of the literature review show that innovations in educational institution management and technology-based learning design have a significant contribution to strengthening the emergency curriculum. During the COVID-19 pandemic, various educational institutions in Indonesia and other countries faced a major crisis in providing sustainable education services. In this situation, the success of the implementation of the emergency curriculum is largely determined by the institution's ability to innovate, both in terms of leadership, decision-making, and digital-based learning management. Effective leadership and adaptive education management enable educational institutions to respond to crises quickly, flexibly, and in a targeted manner.

School principals who have transformational leadership tend to be able to encourage adaptive management innovation. These innovations include strengthening digital communication between schools and parents, the use of online management platforms for learning planning, and the involvement of teachers in school policy formulation during crises. Digital leadership is the starting point for fast and flexible decision-making, while ensuring that the learning process continues even when not under normal conditions. This view is reinforced by the idea that collaboration between central authorities and local schools plays a crucial role. An integrated leadership model that grants schools autonomy while maintaining alignment with central regulations can enhance adaptation to emergency policies and streamline decision-making processes.

Hermawansyah (2021) highlights the importance of data-based crisis management. Schools that are able to integrate data on student attendance, learning outcomes, and family socio-economic conditions into decision-making can design more inclusive and targeted learning strategies. In conditions of limited internet access, these schools adopt alternative learning models such as the use of print modules, radio broadcasts, or teacher visits to students' homes. This is a clear example of managerial innovation based on contextualizing local needs and siding with vulnerable groups. Another study by Putra and Mulyadi (2021) also found that schools that routinely collect digital feedback from students and parents can make continuous improvements to teaching methods and teaching materials. This feedback is the foundation for developing more relevant and personalized learning strategies, as well as helping schools build a student-centered learning system.

In terms of learning design, the literature shows that the successful implementation of the emergency curriculum is highly dependent on the creative and effective use of technology. The use of Learning Management Systems (LMS) such as Moodle, Google Classroom, and local platforms such as Rumah Belajar has become the main medium in online learning. A study by Arizona et al. (2020) noted that teachers who undertake project-based learning design with the help of digital technology are able to increase student engagement during online learning. This is because learning is designed to be more interactive, with audio-visual elements, discussion forums, and fun online quizzes. In the international context, Sarwa et al. (2021) showed that the application of flipped classroom approaches and project-based learning supported by LMS during the pandemic had a positive impact on

students' learning motivation and academic outcomes. This approach reduces student burnout, as it allows them to study the basic material independently and use online face-to-face time for discussion and reinforcement of concepts.

However, the challenges that arise are not few. Nugroho (2021) shows that most teachers do not have adequate digital pedagogic competencies. Many teachers simply transfer PowerPoint materials to online platforms without adapting to delivery or assessment strategies. This makes learning passive and monotonous, and less stimulating for students' active participation. To address this, some educational institutions are conducting self-training for teachers and developing online teacher learning communities to share best practices. Wuryaningtyas and Setyaningsih (2020) emphasized the importance of developing TPACK (Technological Pedagogical Content Knowledge) competencies for teachers in order to bridge the use of technology with meaningful learning practices. Digital literacy is not only about the technical ability to operate applications, but also touches on the pedagogical aspect of designing interactions and assessments that are in accordance with the context of online learning.

Furthermore, cross-sector collaboration has also emerged as a managerial strategy that strengthens the implementation of the emergency curriculum. Rahmi (2020) said that schools that actively involve parents in monitoring online learning are more successful in maintaining student motivation. Intensive communication is carried out through WhatsApp groups, learning needs surveys, and online consultations. This collaboration shows that the success of the emergency curriculum is not only a matter of technology, but also community participation in

supporting the education ecosystem. In this case, the school is no longer the sole center of the learning process, but becomes a facilitator in the home and community-based education ecosystem. This demands a new paradigm in school management that is more open and collaborative.

Importance of a balance between top-down and bottom-up managerial approaches. In some cases, teachers are given autonomy to design mini-curricula based on student needs and local contexts, but remain within the regulatory framework of national emergency curriculum. This kind of approach allows for more organic and accommodating innovation, while maintaining the accountability of educational institutions to the government. This controlled autonomy becomes a space for teachers to innovate without losing the main policy direction. This proves that flexible but still systematic management can produce more relevant, contextual, and inclusive learning models.

The discussion of these results shows that the emergency curriculum is not enough just by simplifying the material and changing the learning format. The success of this curriculum is highly determined by innovations in institutional management and learning strategies that are able to answer real challenges in the field. Education management is required to be more agile, open to change, and able to respond to students' socio-economic conditions proportionately. Learning design must also be adapted to emergency situations, taking into account the access, motivation, and mental health of students and teachers. In addition, the pedagogic approach used must be able to build meaningful interactions even though it is done

online, through the use of varied media and challenging and contextual learning activities.

In a global review, literature from other countries such as India and the Philippines also confirms that management innovation and digitalization of learning are key to educational success during times of crisis. These countries are developing policies that support school flexibility, improve internet connectivity, and provide nationwide online training for teachers. The Indian government, for example, released a digital training program “DIKSHA” and provides open learning modules for all public and private teachers. The Philippines through the DepEd Commons provides free national LMS access for all primary and secondary schools, which is integrated with an online assessment system. These measures show that policy interventions are highly influential in the success of emergency education transformation.

Thus, the findings of this literature study reinforce the position that education management and learning design should move in a single strategic unit, rather than as separate entities. Both complement and strengthen each other, thereby creating an education system that is adaptive, responsive, and resilient in facing crises. Furthermore, these results also open up space to design a more systematic national emergency education policy framework. Currently, Indonesia does not have education management standards in disaster or crisis conditions. In fact, with the potential for natural disasters and high health crises, an emergency response education management roadmap is needed. This study encourages the existence of a policy document that contains education digitization protocols, minimum

standards for learning services, and collaborative management models between institutions and communities. Overall, the results and discussions showed that managerial innovation and technology-based learning were the two main pillars in supporting the strengthening of the emergency curriculum. The combination of digital leadership, community collaboration, and interactive learning design will be a strong foundation for resilient education in the face of future crises.

5. Conclusion

The emergency curriculum was born in response to educational needs in times of crisis, such as the COVID-19 pandemic, and requires innovative management and learning approaches to run effectively. Based on the literature that has been analyzed, it can be concluded that educational institution management innovation plays an important role in creating governance that is adaptive, participatory, and responsive to change. Digital leadership, data-driven decision-making, and cross-sector collaboration are key elements in strengthening educational institutions' ability to face challenges during emergencies. Technology-based learning design has also proven to be effective in maintaining the continuity of the learning process, despite limited access and resource readiness. The use of digital platforms, interactive media, and online-based assessments increases student flexibility and engagement.

However, the success of this design is highly dependent on teacher competence, infrastructure readiness, and support from school management. Therefore, a holistic and integrated strategy is needed between managerial and pedagogical aspects in dealing with emergency situations. Governments and

education stakeholders should prepare an emergency response education policy framework, expand teacher training, and improve education's digital infrastructure. Thus, educational institutions will have better resilience and readiness in ensuring that students learning rights are still fulfilled in any crisis conditions in the future.

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