

RECONSTRUCTION OF NON-FORMAL EDUCATION AFTER COVID-19: A LITERATURE REVIEW ON CURRICULUM, METHODOLOGICAL INNOVATIONS, AND TECHNOLOGICAL TRANSFORMATION

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Abstract. The COVID-19 pandemic has been a major catalyst for fundamental changes in the global education system, including the non-formal education sector in Indonesia. This journal aims to systematically and comprehensively examine the reconstruction process of non-formal education in the post-pandemic era by analyzing transformations in three main pillars: curriculum, teaching methods, and technology. Using a systematic literature review approach based on national and international scholarly journal sources published between 2019 and 2024, this study analyzes the responses of non-formal education institutions to the significant changes that have occurred. The analysis reveals that the pandemic forced curriculum adaptations to become more flexible, concise, and focused on essential competencies and life skills relevant to crisis contexts. In terms of teaching methods, there was a significant shift from face-to-face learning to innovative, planned blended/hybrid learning models, which require enhanced digital roles and competencies of tutors or educators as facilitators. Meanwhile, technological transformation occurred on a broad and rapid scale, marked by the adoption of various digital platforms. However, this acceleration was accompanied by significant challenges in digital disparity, which risks increasing the inequality of access and quality for vulnerable non-formal education target groups. This study concludes that non-formal education has evolved into a more adaptive learning ecosystem integrated with technology. Nevertheless, for this transformation to reach its full and inclusive potential, it requires strategic policy support focused on equitable digital infrastructure development, educator competency enhancement, and the design of just and inclusive learning solutions.

Keywords: non-formal education, post-pandemic, curriculum adaptation, blended learning, technological transformation, digital divide

INTRODUCTION

Non-formal Education (NFE) is a vital component of Indonesia's National Education System, playing a crucial role in supporting the achievement of lifelong learning goals. In a legal context, Law Number 20 of 2003 concerning the National Education System explains that Non-formal Education is an educational path that takes place outside the formal education system, which can be implemented systematically and gradually. NFE offers flexibility in form, time, and learning methods, making it a strategic alternative to meet the learning needs of people at various stages of life (Pemerintah Indonesia, 2003). This definition confirms that Non-Formal Education (NFE) is an educational path characterized by flexibility in its implementation, yet it remains structured within a systematic framework. The existence of Non-Formal Education (NFE) is intended to meet the learning needs of the broader community, particularly individuals who are not adequately accommodated by the formal education system. Therefore, Non-Formal Education (NFE) acts as a strategic alternative capable of adapting to various situations, backgrounds, and learning

opportunities available to each community group (Astikaningtyas et al., 2022). Non-formal Education (NFE) serves as a substitute, supplement, and/or complement to the formal education system. In its role as a substitute, NFE offers equivalency education programs, including Package A (equivalent to primary education), Package B (equivalent to junior secondary level), and Package C (equivalent to senior secondary level), to reach individuals who have dropped out of school. As a supplement, NFE enhances students' understanding and skills through course and training services designed to deepen the knowledge acquired in formal education. Meanwhile, in its complementary function, NFE provides space for the development of self-potential, interests, talents, and life skills that are not fully facilitated in the school curriculum, such as through activities in art studios, hobby groups, or scouting organizations.

The scope of Non-formal Education (NFE) is very broad and varied, encompassing various forms of educational units that can be organized by both the government and community elements. Some of the main forms of non-formal education units include Community Learning Activity Centers (PKBM), Course and Training Institutions (LKP), Study Groups, and Majelis Taklim. This diversity reflects the flexibility of NFE in reaching various learning needs in the community (Syaadah et al., 2022). The diversity of unit forms in Non-Formal Education (NFE) reflects that NFE is designed adaptively to address specific learning needs that are in line with the social context of the community. One of the main characteristics of NFE lies in its flexibility, both in curriculum preparation, scheduling, and the location of learning implementation. Additionally, NFE has a strong orientation towards meeting the practical needs of students and relevance to the demands of the world of work. Unlike formal education, NFE also does not impose rigid age restrictions, making it open to all age groups (Astikaningtyas et al., 2022).

In early 2020, the global community faced a serious health crisis due to the outbreak of the COVID-19 pandemic. This crisis had a wide-ranging impact on various sectors of life, including the education sector, which experienced significant disruptions to its implementation process (Suteki, 2020). The implementation of widespread school closure policies, both nationally and globally, as an effort to curb the spread of the COVID-19 virus, triggered a sudden shift from face-to-face learning to a Distance Learning (PJJ) system. This drastic change revealed various weaknesses and unpreparedness in the existing education system. In the initial phase, the emerging impacts tended to be negative, one of which was the occurrence of learning loss, marked by a significant decrease in student learning outcomes (Irmawati et al., 2022). The phenomenon of learning loss was exacerbated by several obstacles, one of which was the limited mastery of information and communication technology among both students and educators. This obstacle was more significant for senior educators who were generally less accustomed to using digital devices and online learning platforms (Tobing & Azummy, 2020). In addition, the inequality of access to learning support devices, such as gadgets and adequate internet networks, was also a crucial hindrance in the implementation of Distance Learning. This problem was mainly felt in remote areas and by families from lower-middle socioeconomic groups, who had limitations in providing adequate online learning facilities (Hafni, 2021).

Psychological pressure arising from limited social interaction, imbalances in academic workload, and uncertainty about the future also became factors that threatened students' mental health. This condition shows that the impact of the pandemic was not only academic, but also had serious implications for the emotional and psychological wellbeing of students (Pascoe et al., 2022). Although marked by various obstacles, the COVID-19 pandemic also had a positive impact that cannot be ignored, namely, encouraging the acceleration of change in the education sector. This crisis served as a catalyst that accelerated the digital transformation process, making

technology more integrated into learning activities and the overall management of the education system. The demand to implement Distance Learning (PJJ) has pushed educational institutions, educators, and students to adopt and adapt to the use of digital learning technology. This adaptation aligns with the dynamics of the Industrial Revolution 4.0, which emphasizes the integration of technology in various aspects of life, including education. The flexibility inherent in the character of Non-formal Education (NFE) actually provides greater resilience potential in responding to disruptive situations. However, the COVID-19 pandemic revealed more complex challenges than anticipated. NFE's ability to adapt quickly to crisis conditions was hindered by limited access to technology and low digital literacy, particularly among vulnerable groups and communities residing in areas with limited infrastructure. Consequently, the flexibility that is theoretically NFE's strength cannot be fully realized in the field due to ongoing social and technological inequalities. This contradiction is the main focus in efforts to reconstruct and strengthen the role of NFE in the post-pandemic era.

METHODS

This study employs a qualitative approach, utilizing a systematic literature review methodology. This approach was chosen because it aligns with the research objectives, namely to identify, critically review, and synthesize the results of previous studies relevant to the theme of post-COVID-19 Non-formal Education (NFE) reconstruction. This method allows the researcher to gain a comprehensive understanding of the changes, challenges, and innovations that have occurred in NFE practices based on available empirical evidence. With this approach, the research does not collect primary data directly in the field but rather utilizes scientific literature as its primary data source. The literature reviewed serves as a basis for thoroughly answering the research questions by exploring and analyzing information previously published in various trusted sources. This study utilizes secondary data from scientific journal articles, both national and international, that have undergone a peer review process. The selection of sources is done carefully and systematically to ensure the validity, reliability, and academic quality of the information being analyzed. With this approach, the study is expected to produce a strong and scientifically justifiable synthesis.

Data collection was carried out systematically through searches of digital journal databases. This process was conducted across three main databases: SINTA (Science and Technology Index), GARUDA (Garba Rujukan Digital), and Google Scholar, to ensure broad international coverage. To capture research relevant to the specific Indonesian context, the search focused on research relevant to the context of Non-Formal Education in Indonesia, especially within the post-COVID-19 pandemic framework. Search keywords were grouped based on three main pillars, namely: (1) NFE context (e.g., Non-formal Education, PKBM, Course and Training Institutions, Equality Education), (2) pandemic context (such as: post-COVID-19, post-pandemic, new normal, pandemic), and (3) study focus (among others: curriculum adaptation, technology transformation, digital divide, blended learning, hybrid learning). To ensure the relevance and currency of the data used, a rigorous selection process was applied to the search results obtained.

The entire process was conducted carefully and in an organized manner to ensure the validity, reliability, and academic quality of the information analyzed. Through this approach, the study is expected to produce a deep, relevant, and scientifically justifiable synthesis. The data collected from the selected articles were analyzed using a thematic analysis approach. This technique was carried out through three main stages. First, the familiarization stage, which involves carefully reading each relevant article to understand the context and identify important findings. Second, the

coding stage, where significant data is coded based on categories that emerge from the literature content. Third, the theme formation stage, which is carried out by organizing the coding results into three main thematic categories that have been previously determined: (1) Curriculum Adaptation, (2) Learning Method Innovation, and (3) Technology Transformation. These three themes become the main framework for analyzing the forms of adaptation that occur in Non-formal Education (NFE) in the post-pandemic era. The next step in this research is to synthesize the literature grouped by theme. The researcher then constructs arguments systematically and coherently by identifying common patterns, similarities, differences, and gaps that appear in various literature sources. The interpretation results from this synthesis form the basis for the preparation of the Results and Discussion section, which is presented narratively and in-depth to provide a comprehensive understanding of the post-pandemic Non-formal Education (NFE) reconstruction process.

RESULTS AND RESULTS AND DISCUSSION

Curriculum Adaptation: Evolution Towards Flexible and Contextual Education

The COVID-19 pandemic has brought about a fundamental change in the curriculum development paradigm in Non-formal Education (NFE). The curriculum, previously understood as a collection of teaching materials, is now seen as a strategic tool that plays a vital role in ensuring the continuity and relevance of the learning process amidst a crisis. One of the biggest lessons from the pandemic is the demonstrated weakness of a curriculum that is too content-dense and rigid. When face-to-face learning ceased, pursuing the completion of all material became unrealistic and burdened both students and educators. This led to a strong push for simplification and flexibility in the curriculum (Gusty et al., 2020). In response to this situation, the government launched the "Emergency Curriculum" option, which focuses on essential and prerequisite competencies. This curriculum is a simplified version of the national curriculum, with a reduction in basic competencies, allowing teachers and students to focus on the most important material. Although initially intended for formal education, its principles were widely adopted adaptively by NFE providers because they proved more effective in reducing indications of learning loss compared to the regular curriculum.

The response of NFE institutions to this need varies according to the type of service and the characteristics of their students. For instance, as educational units oriented towards practical skills, Course and Training Institutions (LKP) made very pragmatic curriculum adjustments. A case study at Graha Wisata Hotel School Semarang showed adaptation in the form of reducing the frequency of face-to-face meetings to twice a week, dividing study groups into smaller ones (a maximum of 15 people per class for practical classes), even holding online classes for theory and simple practices such as carrying trays and floristry, as well as adjusting instructor working hours. Language centers also developed an "emergency curriculum" designed specifically for distance learning. However, this adaptation is not without consequences. The reduction in direct practice hours raises concerns about a decrease in the standard of skills achieved by students, a crucial challenge for vocational education.

Community Learning Activity Centers (PKBM), which organize equivalency education programs, face more complex challenges. The curriculum must be modified to suit the individual's specific conditions and learning needs (Latifa et al., 2021). The analysis of learning needs is a key step before designing a program, ensuring that the material delivered is relevant and accessible. The curriculum for other programs, such as functional literacy and entrepreneurship education, was also adjusted to be delivered through online or blended modes, with a focus on economic

empowerment amid the crisis. In general, curriculum adaptation in various NFE institutions shows a paradigm shift. The focus is no longer on the broad scope of material, but on mastering core competencies and life skills. The skills considered most relevant in times of crisis and post-crisis are digital literacy, adaptability, problem-solving, and digital-based entrepreneurship. An adaptive and innovative curriculum is key in preparing the younger generation to face a future full of challenges.

Learning Methods: From Face-to-Face to Limitless Learning

The disruption caused by the pandemic has driven a revolution in learning methods in the NFE sector. The limitations of physical interaction have forced educators to innovate and adopt new approaches that go beyond traditional face-to-face methods. The initial phase of the pandemic was characterized by emergency remote teaching, where many institutions simply moved conventional methods to digital platforms without significant pedagogical adjustments (Cowden et al., 2020). As a result, learning often felt ineffective and monotonous (Talukdar & Mete, 2022). Over time, an evolution occurred towards more structured learning models such as Blended Learning and Hybrid Learning. Blended learning is defined as an approach that systematically integrates various technologies and learning modes (face-to-face and distance) to optimally meet the needs of students. This model is not just about mixing methods, but about designing a coherent learning experience by utilizing the advantages of each mode (Siswanto, 2023). Studies show that the hybrid learning model, which combines face-to-face and online sessions, is proven to be more effective in improving conceptual understanding than fully online learning (Ma'arif et al., 2025). The implementation of hybrid learning at PKBM Rumpun Aksara Jember, for example, was reported to have successfully increased the learning participation of students with physical disabilities by giving them the flexibility to not always be physically present (Koten et al., 2024). This demonstrates the great potential of the blended model to enhance inclusivity in NFE.

The limited direct supervision during Distance Learning (PJJ) has encouraged the adoption of more student-centered methods. There are 3 learning models that can be identified, including: (1) Project-Based Learning (PBL), this model has become very popular because it emphasizes student activities to solve problems and produce authentic products. PBL allows students to apply knowledge in a real-world context and can be done flexibly. A study found that PBL, assisted by learning videos, significantly improved students' critical reasoning and science literacy. However, its implementation also has challenges, such as the presence of students who are less active in group work and the need for a long project completion time. (2) Flipped Classroom, in this model, students learn the material at home first (for example, through videos or reading materials), and the meeting time (both online and face-to-face) is then focused on discussion and problem-solving. (3) Independent Learning Model, in several PKBMs, the independent learning model is implemented through digital platforms such as seTARA Daring. In this model, the tutor prepares materials and learning resources, while students are encouraged to learn independently at their own pace and on their own schedule.

This transformation of learning methods places huge new demands on NFE educators (tutors/facilitators). Their role shifts from delivering material to being facilitators, motivators, and learning guides. The success of implementing these new methods is highly dependent on the digital competence of the educators. They are required to master various platforms, design interactive digital content, and manage virtual classes (Folaranmi et al., 2023). Unfortunately, this has become one of the biggest challenges, as not all educators have adequate readiness, a gap that has been

identified since the beginning of the pandemic (Nongko et al., 2024). Therefore, continuous professional development for NFE educators is an absolute prerequisite.

Technology Transformation: Digital Acceleration and the Challenge of the Divide

The COVID-19 pandemic served as a catalyst for the adoption of technology in NFE. However, this transformation runs on a double-edged sword: it opens up opportunities for innovation, while at the same time widening the gap in inequality. The pandemic disruption forced NFE institutions to adopt digital technology on a massive scale. Various platforms became the backbone of Distance Learning (PJJ). Communication and collaboration platforms, such as video conferencing applications like Zoom and Google Meet, have become the primary virtual classrooms (Maulidian & Harjawati, 2021). Learning Management Systems (LMSs), such as Google Classroom and Moodle, were used to manage classes in a structured manner (Hanifah, 2021). Meanwhile, instant messaging applications such as WhatsApp became the most accessible and widely used communication tool. Some institutions have even developed their own LMS to answer specific needs. An example is SKB Posimpotove, which developed Moega Smart School (MSS) to facilitate learning and assessment, where 100% of teachers were reported to have mastered it after training.

Behind the euphoria of digital transformation lies a fundamental challenge: the digital divide, which is multidimensional. There is an access gap (infrastructure) for non-formal education students to get equal access to hardware (gadgets/laptops) and a stable and affordable internet connection (Nugraha et al., 2020). This problem is more acute in rural and remote areas. Data shows a significant disparity in ICT infrastructure between provinces in Indonesia, which hinders the equalization of digital education (Yusra et al., 2021). Many educators and students also lack adequate digital skills. The age factor is often an obstacle, as senior teachers tend to be more technologically illiterate than their junior counterparts. Indonesia's digital literacy index in 2021, which was still at 3.49 on a scale of 5, indicates that public awareness and digital skills in general still require improvement. Additionally, the success of online learning is significantly influenced by family support. However, many parents of NFE students lack the capacity or time to effectively accompany their children in learning at home.

The vocational education sector, which is the mainstay of many LKPs, has been significantly impacted. Many training programs that rely on hands-on practice have been postponed or canceled (Ayupijaya, 2021). In response, the pandemic has spurred the digitization of vocational training, with the emergence of various online and blended training models. The government has launched large-scale programs such as the Pre-Employment Card to improve skills (upskilling) and reskill the workforce. However, a major challenge remains, namely how to ensure the quality of practical skills training can be maintained in an online format, where physical interaction with equipment is very limited (Sudiyono et al., 2022).

CONCLUSION

This literature review demonstrates that the COVID-19 pandemic was not only a momentary crisis but also a pivotal moment of fundamental reconstruction for NFE in Indonesia. The adaptation process forced by circumstances has triggered a significant evolution in the three main pillars of NFE. First, in the curriculum pillar, there was a shift from a broad coverage of material to a focus on essential competencies and life skills. Second, in the learning method pillar, there was a transition from the dominance of face-to-face to the adoption of a more planned and pedagogical blended/hybrid learning model. Third, in the technology pillar, there was a massive

acceleration of digital transformation, opening up new opportunities for flexibility and reach. However, this progress is overshadowed by the challenge of a sharp and multidimensional digital divide. Based on the synthesis of the findings, a main argument can be drawn: the post-pandemic reconstruction of NFE is characterized by a shift from its position as an alternative educational institution to a more dynamic, adaptive, and technology-integrated learning ecosystem. The pandemic has compelled non-formal education to demonstrate its relevance in a new, all-digital world order. However, the full realization of this potential is highly dependent on the system's ability to overcome the most crucial structural barrier, namely the digital divide. Without serious efforts to bridge the gap in access, competence, and digital support, technology transformation risks betraying NFE's core mission to serve the most marginalized.

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