International Journal of Education, Vocational and Social Science
https://e-journal.citakonsulindo.or.id/index.php/IJEVSS
E-ISSN : 2963 4954
IJEVSS

Project-Based Curriculum Innovation Using A Hybrid Learning Approach In Primary Madrasah

Fitria Dwi Ningsih
Universitas Islam Negeri Sunan Ampel Surabaya, Indonesia
Nadlir
Universitas Islam Negeri Sunan Ampel Surabaya, Indonesia

Corresponding Author: *fitriad752@gmail.com*

Abstract

This study discusses a project-based curriculum innovation combined with a hybrid learning approach at the Madrasah Ibtidaiyah level. The changing educational needs of the 21st century require madrasahs to provide learning that is more flexible, contextual, and capable of developing 21st-century skills such as creativity, collaboration, problem-solving, and digital literacy. Through the integration of Project-Based Learning (PjBL) with a hybrid system, students have the opportunity to engage in real projects that encourage more active learning activities while still receiving support from digital learning resources that can be accessed online. This study uses a literature review method by examining various literature, scientific articles, and research reports related to the implementation of PjBL and hybrid learning in primary education and madrasah. The study results indicate that this curriculum model has the potential to increase learning motivation, strengthen social skills, and support more personalized and flexible learning. However, obstacles such as limitations in technological infrastructure, teachers' pedagogical readiness, risks of digital distractions, and potential conflicts with traditional values remain challenges that must be addressed. The research findings emphasize the importance of teacher training, facility support, and adaptive strategies that still respect the characteristics of madrasahs so that the implementation of the project-based hybrid curriculum can run optimally and sustainably.

Keywords: Hybrid Learning, Project-Based Learning, Curriculum Innovation

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INTRODUCTION

Primary education plays a vital role in equipping pupils with 21st-century skills, focusing not only on subject knowledge but also on the development of critical thinking, collaboration, creativity and an understanding of technology and digital information. Rapid technological developments and the ever-changing needs of society demand curriculum reform, so that madrasah graduates are able to adapt to social and economic changes and technological advances. Efforts to reform the curriculum and the use of various learning models are strategic steps being taken by the Indonesian education sector to address these challenges(Fatimatuz, 2024). Education itself is a fundamental factor in a country's progress(Aini et al., 2018). It is through quality education that society can develop sustainably in various aspects of life.

One approach that has been widely introduced in educational research is project-based learning (PjBL). This model places learners at the centre, enabling them to design, carry out and present real-world projects, thereby fostering a more active and participatory learning process whilst honing their social, critical thinking and creative skills (Sakilah et al., 2020). A number of studies at primary school and madrasah level have also shown that PjBL can enhance pupils' creativity, motivation and social skills. Consequently, the integration of PjBL into the curriculum is regarded as an appropriate form of educational innovation to be implemented in primary education (Sakilah et al., 2020).

The hybrid learning model offers the opportunity to integrate the strengths of face-to-face learning with the flexibility of digital technology, including the use of online learning resources and online collaboration tools. However, its implementation requires adequate educational infrastructure, teachers' pedagogical and technological competencies, and parental involvement in supporting the learning process. Research findings regarding the implementation of hybrid learning at primary school and madrasah level show mixed results. This approach has the potential to enhance pupils' motivation and learning outcomes if designed in accordance with the developmental characteristics of primary school children. However, operational challenges remain, particularly those relating to limited access to technology and teachers' readiness to manage hybrid-based learning(Dzauharoh et al., 2024).

Within the context of MI schools, the requirements arising from the national curriculum and the development of the 'Merdeka' curriculum are driving educational institutions to implement various forms of adaptation and innovation, both in terms of curriculum content and learning strategies. MI schools possess distinctive characteristics, such as an inherent religious context, specific timetables, and variations in facilities and the quality of human resources

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between madrasahs. Therefore, the implementation of curricular innovations such as Project-Based Learning (PjBL) and hybrid learning requires a review that takes these characteristics into account. Research findings at the local level also emphasise the importance of designing projects relevant to the madrasah context, enhancing teachers' competencies through training, and providing adequate policy support to ensure the sustainability of curricular innovation in MI schools (Aisyah et al., 2023).

Although the integration of project-based curriculum with a hybrid learning approach shows great promise in combining contextual learning, strengthening 21st-century skills and utilising the flexibility offered by technology, empirical research at madrasah level still leaves a number of gaps. Few researchers have yet to explain how this model can be optimally adapted to the characteristics of Islamic primary schools (MI), such as limited learning time, teachers' pedagogical and technological capacities, and the extent of parental support for the integration of these two approaches. Furthermore, it is necessary to examine in greater detail how the integration of these two approaches affects pupils' academic achievement and character development, as well as the driving factors and barriers that arise during its implementation in practice. A number of preliminary studies in MI and primary schools in Indonesia have indeed shown that PjBL is capable of enhancing creativity and social skills. Meanwhile, hybrid learning has a positive impact on learning motivation (Rizal et al., 2025).

The novelty of this research lies in its attempt to comprehensively integrate a project-based curriculum with a hybrid learning approach within the context of Madrasah Ibtidaiyah. This combination has rarely been studied simultaneously within a single curriculum design. This research not only focuses on testing the effectiveness of learning methods but also develops a form of curriculum innovation that encompasses planning, implementation and evaluation mechanisms for project-based learning, integrated with a systematically designed blended learning system.

Based on the previous discussion, this study aims to examine project-based curriculum innovation integrated with a hybrid approach at the Madrasah Ibtidaiyah level. Specifically, this study aims to design a project-based curriculum model integrated with a hybrid learning system that is aligned with the characteristics of MI, and to analyse the implementation process as well as the various challenges that arise during its implementation. It is hoped that the findings of this study will provide practical recommendations for curriculum developers, madrasah leaders and primary education policymakers in strengthening relevant, adaptive and sustainable learning innovations within the Madrasah Ibtidaiyah environment (Aisyah et al., 2023).

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RESEARCH METHOD

This study employs a literature review methodology to examine hybrid innovations, involving the collection, analysis and synthesis of various relevant written sources, such as books, journal articles, research reports and other documents related to the topic. The aim of this study is to identify, evaluate and develop an understanding of how hybrid learning curricula are developed, implemented and evaluated in an educational context

This literature review utilises thematic analysis as an approach to explore key concepts and assess the quality and credibility of the literature under review. The findings from this review are expected to provide a solid theoretical foundation regarding hybrid curriculum innovation, whilst also revealing best practices, various challenges and strategic recommendations to support its effective implementation in an educational context.

The Concept of Hybrid Curriculum Innovation

1. Definition

The word 'curriculum' derives from the Latin 'curriculum', meaning a track or racecourse particularly a horse-racing track and is related to the French term 'courier', which means 'to run'. In its subsequent development, this term has come to describe the set of subjects or fields of study that a person must complete in order to obtain a specific qualification or certificate. In Government Regulation of the Republic of Indonesia No. 19 of 2005 (Indonesia, 2005), the curriculum is defined as a set of plans and arrangements concerning these objectives, as well as the learning materials and methods used as guidelines in the organisation of the learning process to achieve the established educational objectives.

2. Hybrid Curriculum Innovation

Hybrid curriculum innovation is a learning approach that combines conventional methods with digital technology to create a more adaptive and holistic learning experience (Prayetno, 2017).

Integration of Project-Based Hybrid Methods

The integration of project-based hybrid methods combines the learner-centred and authentic learning principles of Project-Based Learning (PjBL) with the flexibility and ease of access offered by a hybrid learning model that blends face-to-face sessions with online activities. This integrated approach provides students with the opportunity to work on real-world projects that foster collaboration, problem-solving skills and the creation of tangible outcomes. Meanwhile, the

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online learning components, along with opportunities for reflection and documentation of the project process (Ramadhan et al., 2024).

The integration of a project-based hybrid approach combines the principles of Project-Based Learning (PjBL) which emphasises authentic, learner-centred learning with the flexibility and ease of access offered by a hybrid learning model that combines face-to-face sessions and online activities. Through this integrated approach, learners can undertake real-world projects that require collaboration, problem-solving and the production of tangible outcomes. Meanwhile, the online component provides additional learning resources, digital collaboration tools and a space for reflection and documentation of the project process, including through digital portfolios (Marini et al., 2025).

Flexibility in Learning

This curriculum offers greater flexibility in the learning process, both in terms of time and place. For example, the use of digital learning platforms enables students to access materials asynchronously, allowing learning to take place outside official lesson times, whilst still adhering to the pesantren's guidelines on technology access.

Emphasis on Collaborative and Interdisciplinary Learning

The Hybrid Curriculum provides scope for collaborative and interdisciplinary learning, where students can work in groups to complete projects or tasks that combine various fields of knowledge. This approach not only broadens the learning experience but also contributes to the development of soft skills, as well as the ability to collaborate, communicate and solve problems.

Through the implementation of a hybrid curriculum, Madrasah Ibtidaiyah has the potential to develop into an educational institution that is responsive to the changing times, whilst maintaining its identity and fundamental principles as its foundation. This situation opens up opportunities for pupils to grow as individuals who not only possess a strong understanding of religion, but also have the relevant skills to face the challenges of the modern world.

3. Principles of Hybrid Curriculum Development

a. The Principle of Relevance

Relevance, as used here, refers to the alignment or harmony between educational outcomes and the demands of life in society. In other words, education is considered highly relevant if the outcomes of that education have practical value for everyday life.

b. The Principle of Efficiency

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The principle of efficiency involves a comparison between the results achieved and the expected expenditure, which should at the very least demonstrate a balanced outcome. In other words, this economic principle must be applied: that is, the least possible amount of effort, time and cost should be expended to achieve optimal results.

c. The Principle of Effectiveness

The principle of effectiveness refers to the extent to which the curriculum design achieves the objectives that have been set. In an educational context, effectiveness can be examined through two dimensions. Firstly, the effectiveness of teaching by educators that is, the extent to which the designed teaching and learning process can be implemented optimally. Secondly, the effectiveness of student learning, which reflects the extent to which learners succeed in achieving learning objectives through the series of instructional activities that have taken place.

RESULTS AND DISCUSSION

A literature review on hybrid curriculum innovations that integrate school education within the context of developments in information technology has yielded several significant findings. The results of the literature review indicate that hybrid curricula, which combine face-to-face learning with the use of digital technology, offer a more comprehensive approach to developing both the cognitive abilities and the spiritual dimensions of learners.

Hybrid Learning Curriculum Concept

A. The Integration of Traditional and Digital Learning Methods

In a hybrid curriculum, various traditional methods such as face-to-face learning, rote learning, lectures, class discussions and religious activities continue to serve as core components. However, these approaches are reinforced by the use of digital technology, including educational videos, interactive presentations, online modules and educational software. Through this integration, the delivery of subject matter is supported by a variety of digital resources that pupils can access to deepen their understanding.

a. The Use of E-Learning as a Complement

E-learning platforms serve as a supporting tool that provides students with the opportunity to learn independently outside formal lesson times. For example, boarding schools can provide access to various web portals containing enrichment materials, practice exercises or educational videos relevant to the topics currently being studied. Although the use of personal devices such as mobile phones is restricted, facilities such

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as shared computers or computer laboratories can be utilised to the full as controlled digital learning media

b. Project-Based Learning

The hybrid curriculum facilitates project-based learning, in which pupils collaborate in groups to complete tasks involving research, problem-solving or the development of a product that integrates religious and general subjects. Throughout this process, technology is utilised as a tool for searching for information, processing data and presenting the results of their work.

c. The Use of Technology to Provide Access to a Wider Range of Learning Materials

The use of technology opens up opportunities for pupils to access a wider range of up-to-date learning materials. Education can utilise various digital resources, such as academic articles, educational videos, infographics and online simulations, to help explain complex concepts in a way that is easier to understand. This integration also provides opportunities for students to access literature that might not be available through conventional teaching methods alone.

d. The Active Role of Teachers as Facilitators

In a hybrid curriculum, the teacher's role is no longer limited to the delivery of information but has evolved into that of a facilitator who guides pupils in understanding and applying knowledge through a variety of media. Teachers are required to be more innovative in designing learning activities that combine traditional approaches with digital technology, whilst optimising the use of technology as a means to enhance the quality of the learning process.

However, a review of the literature indicates that the implementation of a hybrid curriculum faces a number of obstacles. One of the main challenges that frequently arises is the limited technological infrastructure, particularly in Madrasah Ibtidaiyah located in areas with inadequate internet access or digital devices. Furthermore, several sources reveal resistance or a lack of openness on the part of some the resistance or reluctance shown by some educators who still feel more comfortable using conventional teaching methods rather than a hybrid learning approach. These challenges indicate that the successful implementation of a hybrid learning curriculum requires support in terms of facilities, teacher readiness, and a paradigm shift in teaching practice.

B. Advantages and Disadvantages of the Hybrid Curriculum

The following are the factors constituting the advantages and disadvantages of the hybrid

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curriculum:

1) Advantages

a. Flexibility in Learning

The hybrid curriculum allows for flexibility in the teaching and learning process, enabling students to learn both face-to-face and via digital platforms. This provides the option to access learning materials outside school hours, enabling self-directed learning and the revision of material according to each student's individual needs.

b. Enrichment of Learning Resources

Through the integration of technology, students have access to a wider variety of up-to-date learning resources, such as e-books, educational videos and interactive digital content. This can enhance conceptual understanding and broaden students' horizons beyond the material covered in class.

c. More Personalised Learning

The hybrid curriculum enables a more personalised approach to learning by giving students the opportunity to learn according to their own style and pace. Technology can be used to provide material that can be accessed repeatedly or to address gaps in individual understanding.

d. Increased Engagement and Motivation

The use of digital media in learning can boost students' engagement and motivation. Interactive, visual and project-based content can make learning more engaging and relevant, which in turn can improve learning outcomes

2) Weaknesses

a. Limited Access to Technology

Limited access to technology in schools remains one of the major challenges in implementing innovative learning, particularly when schools seek to adopt hybrid learning models or digital-based projects. Many schools, particularly at primary level and in madrasahs, face inadequate infrastructure. This is evident in the limited number of computers, unstable internet connections, and the scarcity of supporting facilities such as projectors, Wi-Fi networks, or computer labs. Such circumstances make it difficult for teachers to facilitate learning activities that require continuous digital support.

b. Reliance on Technological Infrastructure

Reliance on technological infrastructure is one of the key issues in the implementation of modern learning, particularly when schools adopt a hybrid learning approach and digital project-based learning models. Learning that combines online and offline environments

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requires adequate hardware such as computers, laptops, tablets or mobile devices, as well as stable and easily accessible software and learning platforms. Without robust technological support, the learning process cannot function optimally, as every activity from accessing materials, teacher–pupil communication and project collaboration to the submission of assignments is heavily dependent on the readiness of this infrastructure.

c. The Risk of Distraction from Non-Educational Content

The risk of distraction from non-educational content is one of the more serious challenges in the implementation of technology-based learning, particularly when pupils are required to use digital devices during the learning process. Unrestricted internet access makes it very easy for pupils to be distracted by various forms of entertainment, such as social media, online games, short videos and digital adverts that pop up unexpectedly. These distractions often disrupt pupils' focus whilst they are working on projects, following the teacher's instructions, or completing tasks that require concentration. As primary school pupils—or those at Madrasah Ibtidaiyah—are still at a stage of development where their self-control is not yet stable, they are more prone to opening other applications or websites that are more appealing than the learning content.

d. Teacher Adaptation and Training

Teacher adaptation and training are crucial components in the successful implementation of learning innovations, particularly as schools begin to integrate technology and project-based approaches into the curriculum. Digital transformation in the educational environment requires teachers not only to understand the subject matter but also to master technical skills and pedagogical strategies that are in line with contemporary developments. This adaptation process often requires a shift in teachers' mindset from traditional, teacher-centred teaching methods towards a more flexible, collaborative and project-based.

e. Potential Conflict with Traditional Values

Potential conflict with traditional values may arise when educational innovations such as hybrid learning approaches and digital projects are implemented in madrasahs, which have a strong identity rooted in religious values and local culture. Changes to learning patterns that incorporate technology are often perceived as 'foreign' and have the potential to displace the conventional educational practices that have long been held in high regard (Cahyani et al., 2025). For example, the use of digital devices, online platforms and modern learning resources sometimes raises concerns that face-to-face interaction, learning etiquette or the direct example set by teachers may be diminished.

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Furthermore, some parents and educators may view hybrid learning as a form of modernisation that is too rapid, and therefore consider it incompatible with the traditional text-based learning or classical approach that has long been practised in madrasahs. This tension is not only structural but also emotional, as it touches upon aspects of identity, values, and the community's perception of the ideal education for children. If innovations are not communicated effectively and are not balanced with respect for local values, resistance from teachers, pupils and parents alike may hinder their implementation. Therefore, adaptive strategies are required that treat traditional values as part of the foundation, rather than as an obstacle, so that technology can serve to reinforce the educational practices that have long been the defining characteristic of madrasahs.

CONCLUSION

This study on project-based curriculum innovation combined with a hybrid learning approach in Madrasah Ibtidaiyah indicates that curriculum transformation is an inevitable necessity in response to developments in 21st-century education. The integration of these two approaches offers significant opportunities for madrasahs to create learning that is more active, contextual and relevant to the demands of the times, whilst maintaining the religious identity that characterises education at MI. Through PjBL, pupils are given the opportunity to build real-world learning experiences that foster creativity, collaboration and problem-solving skills, whilst hybrid learning provides flexibility and broader access to digital learning resources.

The findings of the study also show that this innovation not only enriches the learning process, but also boosts motivation to learn, strengthens digital literacy, and helps pupils develop higher-order thinking skills. However, the success of its implementation is heavily influenced by schools' readiness to provide technological infrastructure, teachers' competence in using digital devices, and the madrasah community's acceptance of changes to learning patterns. Obstacles such as a shortage of devices, reliance on internet connectivity, the risk of digital distractions, and concerns about the erosion of traditional values present real challenges that must be managed wisely.

Therefore, project-based hybrid curriculum innovation can only function optimally if supported by continuous teacher training, the provision of adequate technological resources, and effective communication with all stakeholders to ensure that the changes introduced remain in line with the character and values of the madrasah. If implemented in a planned and adaptive manner, this model has great potential to become a curricular solution that is not only modern

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and progressive but also remains rooted in tradition and the needs of pupils within the Madrasah Ibtidaiyah environment.

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