DESIGNING AND IMPLEMENTING OF A BLENDED LEARNING MODEL IN THE *MPI* STUDY PROGRAM

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Keywords:	ABSTRACTS
Blended Learning; Learning Model; Development; Effectiveness; Islamic Education Management.	*In response to the growing demand for flexible and high-quality learning, this study developed and tested a contextual and adaptive blended learning model for the Islamic Education Management (MPI) Study Program at the Faculty of Tarbiyah and Teacher Training, UIN Sunan Gunung Djati Bandung. The aim was to design a model that aligns with the academic needs of MPI students while incorporating digital tools effectively. Using a Research and Development (R&D) method based on a modified Borg & Gall model, the study progressed through seven stages, from initial analysis to final implementation. Data were collected through observations, interviews, questionnaires, documentation, and learning outcome tests (pre-test and post-test), involving 14 lecturers and two student cohorts in semesters IV and VI. The developed model integrated 60% online and 40% offline learning, using e-knows LMS, Google Meet, YouTube, and project-based learning strategies. Results showed significant improvement in student learning outcomes and increased engagement, as confirmed by t-test analysis. The study concludes that the blended learning model is effective, contextually relevant, and meets the need for adaptive education. Further research is recommended to apply the model in other courses, explore the integration of AI-based technologies, and conduct longitudinal analysis to assess its long-term impact.*

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A. INTRODUCTION

Education serves as the primary foundation for shaping future generations capable of competing in a rapidly changing and increasingly globalized world (Mutasar, Masril, David, Hendriani, & Fitriani, 2019). In the Indonesian context, the importance of education is firmly anchored in the Preamble of the 1945 Constitution and further reinforced in Article 31 and Law Number 20 of 2003 concerning the National Education System(Abdullah, Hakim, & Salsabila, 2022). This law outlines the goals of national education, which include the development of students' full potential to become individuals who are faithful, pious, noble in character (P., 2021; Scott, 2020), knowledgeable, creative, healthy, and responsible (Aisy & Hudaidah, 2021; Lestari & Maunah, 2022).

Despite these strong foundations, various challenges persist in the field of education. These include disparities in access, uneven quality of teaching and learning, and the misalignment between education outcomes and the competencies required in the job market. These challenges indicate that the education system has not yet fully succeeded in producing superior human resources. Addressing these systemic issues requires not only policy reform but also innovations in the teaching and learning process, particularly those that leverage the potential of digital technologies.

To enrich the conceptual foundation of this study, it is essential to integrate the theoretical underpinnings of synchronous and asynchronous learning within the blended learning framework(Amiti, 2020; Moorhouse & Wong, 2022). These two modalities form the core structure of any blended learning design and significantly influence its pedagogical effectiveness.

Synchronous learning refers to real-time, instructor-led sessions where teachers and students interact simultaneously, typically through video conferencing platforms like Zoom or Google Meet(Li, Yang, Chu, Zainuddin, & Zhang, 2022). This method supports immediate feedback, direct engagement, and social presence, which are critical for building a sense of community and facilitating collaborative learning. Moore (1993) emphasizes the role of synchronous communication in reducing *transactional distance*, fostering dialogue, and promoting cognitive engagement(El-Sapa, Almoneef, Lotfy, A. El-Bary, & Saeed, 2022). In the MPI FTK context, synchronous sessions enable meaningful discourse on complex Islamic education management concepts, which benefit from real-time clarification and discussion.

On the other hand, asynchronous learning involves instructional content and activities that students engage with on their own time, without real-time interaction(Varkey et al., 2023). This can include recorded lectures, digital readings, discussion forums, and self-paced quizzes provided via platforms like e-knows or Google Classroom. The asynchronous approach supports flexibility and individualized pacing, which is crucial for students who may have varying access to technology or external responsibilities. According to Hrastinski (2008), asynchronous learning

enhances reflective thinking and deeper cognitive processing, as students are given the space to digest material before responding.

In the era of globalization and the Industrial Revolution 4.0, mastery of information and communication technology (ICT) is a crucial factor in enhancing educational quality (Olugbo, Obienu, & Amadin, 2023; Sharma & Srivastava, 2020). The integration of ICT into education has become even more urgent since the COVID-19 pandemic, which forced many educational institutions to shift rapidly to online learning(Badrudin & Nurdin, 2019). This shift highlighted the need for flexible, technology-enhanced learning models that can adapt to changing educational contexts and learner needs.

Blended learning an approach that combines face-to-face and online instruction has emerged as a promising solution. Research shows that this model can increase learning flexibility, improve student engagement, and lead to better academic outcomes (Azizi, Roozbahani, & Khatony, 2020; Bizami, Tasir, & Kew, 2023; Hamzah et al., 2022; Sefriani, Sepriana, Wijaya, Radyuli, & Menrisal, 2021; Sumarmi, Bachri, Irawan, & Aliman, 2021). Graham (2006), for instance, emphasizes that blended learning allows students to benefit from the accessibility and autonomy of online learning while still engaging in the interpersonal and interactive benefits of in-person instruction(Morantz & Costopoulos, 2021). However, the successful implementation of blended learning depends on several factors, including technological infrastructure, educator competence, and the relevance of instructional design to students' contexts(Marlina, 2022).

While several studies have demonstrated the effectiveness of blended learning(Cronje, 2020; Shakeel, Haolader, & Sultana, 2023), its implementation in local and specific contexts—such as in the Islamic Education Management (MPI) Study Program at the Faculty of Tarbiyah and Teacher Training (FTK), UIN Sunan Gunung Djati Bandung—remains limited. Despite having achieved "A" accreditation, which reflects a high institutional standard, MPI FTK has not yet fully integrated blended learning, particularly in core courses. Observations suggest that many lecturers have not optimized the use of blended learning due to various constraints including lack of training and model design tailored to their needs.

This gap underscores the urgency of conducting research that not only develops but also tests a blended learning model that is contextual, adaptive, and responsive to the specific academic and technological environment of MPI FTK UIN Sunan Gunung Djati Bandung. The development of such a model is essential to support the improvement of learning quality and to ensure the achievement of desired student competencies.

Therefore, the present study aims to: (1) describe the stages of developing a blended learning model appropriate for the MPI FTK UIN SGD Bandung context; (2) evaluate the effectiveness of the model in real teaching environments; (3) compare the learning outcomes between students taught using the developed model and those using

conventional blended methods; and (4) design a conceptual framework for an effective, flexible, and contextually grounded blended learning model. This research seeks to contribute to the broader discourse on digital pedagogy in Islamic higher education and provide practical solutions that can be adapted by similar programs nationwide.

B. METHOD

This study employed a Research and Development (R&D) approach (Chukhray, Mrykhina, & Izonin, 2022; Corey, Mascola, Fauci, & Collins, 2020; Park & Shin, 2018), to develop and test the effectiveness of a blended learning model in the Islamic Education Management (MPI) Study Program, Faculty of Tarbiyah and Teacher Training (FTK), UIN Sunan Gunung Djati Bandung. The R&D method is deemed appropriate for creating educational products that are adaptive, interactive, and contextual in response to the challenges of digital transformation in higher education (Aka, 2019; Maydiantoro, 2021; Putri, Anak Agung Gede Agung, & I Kadek Suartama, 2023; Syaiviana, Sari, Adinda, Pratiwi, & Anggraini, 2023; Untoroseto & Triayudi, 2023) The development procedure adopted in this study follows the Borg & Gall model, which has been modified to fit the local academic context and research scope

The model development process consists of seven key stages: (1) Preliminary Study – involving a needs analysis to identify learning gaps and constraints; (2) Model Planning – formulating the initial design of a contextual blended learning model; (3) Product Development – creating a prototype, including lesson plans, LMS content, and digital learning tools; (4) Limited Testing – conducting small-scale trials to assess feasibility; (5) Revision – refining the product based on feedback from initial trials; (6) Expanded Testing – evaluating the effectiveness on a broader scale; and (7) Final Product Implementation.

Data collection was carried out using a combination of qualitative and quantitative methods to ensure triangulation. Techniques included direct observation, in-depth interviews, questionnaires, documentation analysis, and learning outcome tests (Jones, 2023; Simplilearn, 2022; Thomas & Brubaker, 2024). Observations focused on interactions between lecturers and students as well as the use of ICT in the learning environment, recorded using structured observation sheets. Interviews involved selected lecturers and students to capture perceptions, challenges, and satisfaction with the model. A Likert-scale questionnaire (scale 1–5) was distributed to all participants (Jebb, Ng, & Tay, 2021; Mumu, Tanujaya, Charitas, & Prahmana, 2022), aimed at gauging perceptions of model effectiveness, satisfaction, and relevance.

Documentation analysis provided additional insights into the actual implementation of blended learning, reviewing academic documents such as Semester Learning Plans (RPS), LMS content, instructional videos, and student assessment results. To measure learning gains, pre-tests and post-tests were conducted before and after implementation of the developed model in two classes (semester IV and VI), each with approximately 30 students. A total of 14 lecturers from the MPI FTK program also

participated. Sampling was done purposively, selecting individuals directly involved in the instructional process using the blended model.

The data sources were categorized as primary and secondary(Thomas & Brubaker, 2024). Primary data were obtained from observations, interviews, tests, and questionnaires, while secondary data were collected from program documentation, curricula, scientific publications, and administrative records relevant to the model's development. The entire data collection process was guided by the principles of validity, reliability, and saturation to ensure accuracy and depth.

The qualitative data analysis followed the framework of Miles and Huberman (Fàbregues, Paré, & Meneses, 2019), consisting of three major steps: (1) Data Reduction – selecting and simplifying the data relevant to research questions; (2) Data Display – organizing reduced data in visual formats such as tables and matrices for interpretation; and (3) Conclusion Drawing and Verification – interpreting patterns, confirming insights, and validating findings through rechecking. The process is iterative, ensuring that conclusions are grounded and credible as figure below.
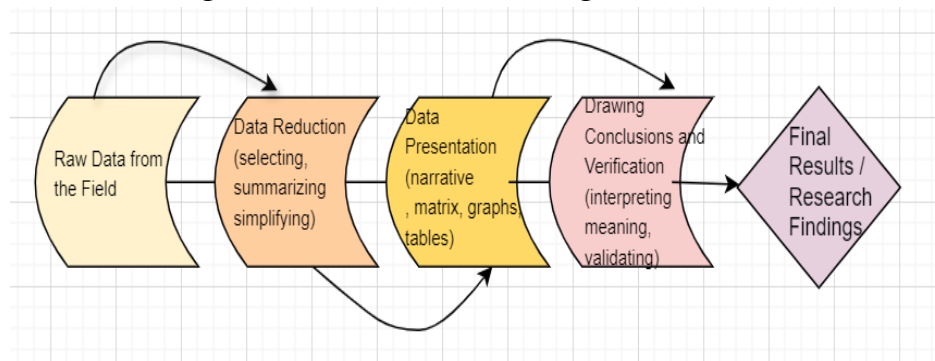

Figure 1. Miles and Huberman's approach flowchart

In parallel, a quantitative approach was used to test the effectiveness of the model (Takona, 2024; Weyant, 2022), particularly by comparing student performance using paired sample t-tests. The statistical hypothesis for this test is as follows: H_0: μ_1 = μ_2 (no difference between pre- and post-test scores), H_1: μ_1 ≠ μ_2 (a significant difference exists between pre- and post-test scores). The t-test formula used is:

$$t = \frac{\overline{d}}{Sd/\sqrt{n}}$$

Where

$\overline{d}$ = Average of the difference in pre-test and post-test scores

Sd = Standard deviation from the difference in score

n = Number of samples (number of students)

t = Calculated t value

The results of the research and discussion are based on data collected from the process of developing and evaluating the blended learning model in the Islamic Education Management Study Program (MPI), Faculty of Tarbiyah and Teacher Training (FTK), UIN Sunan Gunung Djati Bandung. The presentation of results is divided into several

main aspects, namely the description of the model design, strengths and weaknesses, and the concept of effective blended learning model design.

C. RESULT AND DISCUSSION
Research Results
1. Overview of the Design of the Blended Learning Model in the MPI FTK UIN SGD Bandung Study Program

The design of the blended learning model is carried out through the R&D stage as described in the methodology. The process starts from a need analysis of the use of technology in learning. Based on the results of observations and interviews, it was found that most of the lecturers of the MPI FTK Study Program have not used an integrated learning model between online and offline optimally.

The initial product development of the blended learning model was designed by integrating several key components to ensure an effective and structured learning experience. The learning structure adopted a 50:50 ratio between face-to-face and online sessions, allowing for both direct interaction and flexible access to materials. Google Classroom and e-knows were utilized as the primary Learning Management System (LMS) platforms to facilitate online learning. The model comprised essential components such as a detailed learning implementation plan (lesson plan), digital learning materials in the form of PDFs and instructional videos, online discussion forums to foster interaction, *e-Knows, Salam (Students' presence)* and project-based assignments to enhance critical thinking. Additionally, the evaluation mechanism included both formative and summative assessments, conducted through online and offline formats to comprehensively measure student learning outcomes.

The model was tested on a limited basis in one class of the "*Curriculum Management*" course, and the results of the pre-test and post-test showed a significant improvement. As explained below.

2. Model Effectiveness Test Design with T-Test

To measure the effect of the application of the blended learning model on student learning outcomes, a statistical test of the paired sample type T-test (t-test of two paired samples) was used. This design is used because it involves measuring the same group twice, namely before and after being given the treatment.

3. T-Test Steps.

a) Pre-Test: Before the treatment (implementation of blended learning), students are given a pre-test to find out their initial level of understanding of the *Curriculum Management course material (core courses).*
b) Treatment: Students then follow the learning process with a blended learning model that has been designed. Treatment includes learning through LMS, online discussion forums, video materials, and face-to-face meetings.

c) Post-Test: After the learning series is completed, students are given a post-test with material and difficulty level equivalent to the pre-test to measure the extent to which the improvement in learning outcomes occurs.

d) T-Test Formula Two Paired Samples

The basic formula used in this test is:

$$t = \frac{d}{Sd/\sqrt{n}}$$

Were

$\overline{d}$ = Average of the difference in pre-test and post-test scores

Sd = Standard deviation from the difference in score

n = Number of samples (number of students)

t = Calculated t value

1. Calculate the difference in the score of each student: di $= Xpost, i^{-} X pre, i$

Calculate the average difference $(\overline{d}) = \frac{\Sigma di}{n}$

Calculate the standard deviation from the difference in score $(Sd); \frac{\sqrt{\Sigma(di-d)2}}{n-1}$

Then the results of the T-test

Number of students (n) = 30

Pre-Test Installment = 62.40

 Post-test average = 79.30

$\overline{d}$ = 16.9

$SD = 8.5$ t= = = 10.89 $\frac{16,9}{8,5/\sqrt{30}} \frac{16,9}{1,552}$

Based on the above results, it can be concluded that; The value of tcal = 10.89 compared to the table at the degree of freedom df = n–1=29 and the significance level of α= 0.05 = 1, 699 means that tcal >ttable = 10.89>1.699 means that there is a real and significant relationship from the application of the blended learning model to improving student learning outcomes.

Based on the T-Test test, the application of the blended learning model significantly improved student learning outcomes. This shows that the blended learning model is effective to be used in the learning process in the *Curriculum Management course* at the MPI FTK Study Program UIN Sunan Gunung Djati Bandung.

Strengths and Disadvantages of the Design of the Blended Learning Model in the MPI FTK Study Program

Based on the evaluation of the field trial, several strengths and weaknesses of the blended learning model were found as follows:

Strength:

1. Flexibility of time and place of study for students.
2. Increase active student participation through online discussion forums.
3. The material can be accessed again independently.
4. Encourage lecturers to be more creative in compiling materials.

Debilitation:
1. Uneven internet connections are an obstacle for some students.
2. Not all lecturers are proficient in using LMS.
3. The lack of direct interaction in online sessions makes some students less enthusiastic.
4. Online evaluations are still vulnerable to academic cheating.

Design Concept of Blended Learning Model

Based on the data of field findings and the results of the effectiveness test, an effective blended learning model design concept for the MPI FTK Study Program can be prepared as illustrated below.
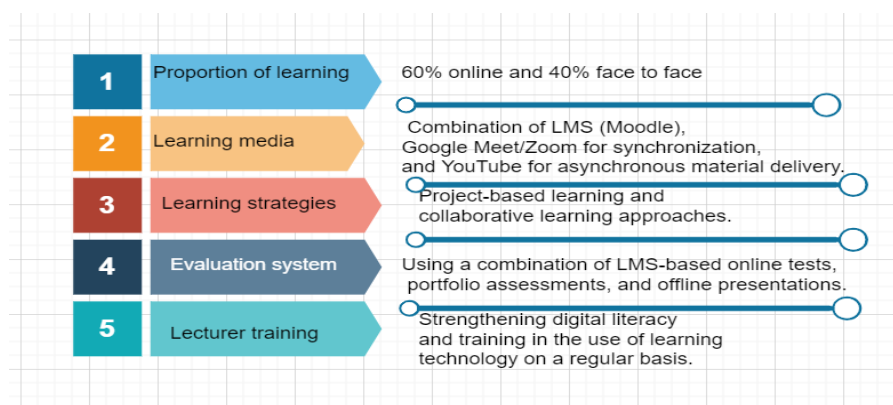

Figure 2. Model Design Concept in MPI Study Program

1. Proportion of learning where 60% online and 40% face-to-face.
2. Learning media by a combination of LMS (*e-knows*), Google Meet/Zoom for synchronization, e-knows, salam and YouTube for asynchronous material delivery.
3. Learning strategies with *Project-based learning* and *collaborative learning* approaches.
4. Evaluation system by using a combination of LMS-based online tests, portfolio assessments, and offline presentations.
5. Lecturer training with strengthening digital literacy and training on the use of learning technology on a regular basis.

This model is designed to facilitate active, flexible, yet pedagogically and technologically controlled learning.

DISCUSSION

Implementation of the Blended Learning Model in the MPI Study Program

The implementation of the blended learning model in the Islamic Education Management (MPI) Study Program at FTK UIN Sunan Gunung Djati Bandung was carried out based on a systematic Research and Development (R&D) approach using a modified Borg & Gall model. The findings highlight the importance of considering three critical factors in the design of this model: technological readiness, lecturer competence, and student needs. The developed model, which was validated by experts and informed by a thorough needs analysis, successfully created a more interactive, flexible, and student-centered learning environment.

The development process consisted of seven main stages: (1) a preliminary study to identify learning challenges faced by both lecturers and students; (2) planning of the model design based on the initial findings and relevant literature; (3) development of an initial product in the form of a blended learning design combining face-to-face and online components; (4) limited trials involving the "Curriculum Management" course to test model feasibility; (5) model revision based on feedback from trials; (6) wider implementation in several courses to assess overall effectiveness; and (7) final refinement and comprehensive application across the MPI program. This structured and contextual development approach ensured that the model was adaptable to the realities of Islamic higher education and responsive to pedagogical trends in the digital era.

Consistent with prior studies by Graham (2006) and Means et al. (2013)(Goldstein, Merrick, & Koprowski, 2018; Heinbach, 2022) the results confirm that a well-designed blended learning model significantly enhances student engagement and learning outcomes, especially when the learning environment is contextualized and adaptive to local needs.

Evaluation of the Implementation of the Model in the Learning Process

The evaluation of the blended learning model was carried out through a combination of observation, interviews, and measurement of student learning outcomes using pre-test and post-test instruments. Observational data revealed increased student participation and richer learning interactions. Students benefited from asynchronous delivery via YouTube videos, which allowed them to review materials independently, as well as synchronous discussions through Zoom or Google Meet that facilitated collaborative knowledge construction.

Interviews with lecturers and students indicated increased satisfaction with the learning process, particularly in terms of flexibility and content accessibility. The incorporation of project-based and collaborative learning approaches further stimulated student motivation and engagement. Lecturers also reported that the use of the e-knows-based Learning Management System (LMS) significantly improved the efficiency of course management, including material distribution, assignment collection, and progress monitoring. Overall, the implementation of this blended learning model had a positive and measurable impact on the quality of teaching and learning within the MPI Study Program.

1. **Strengths and Weaknesses of the Model Design**

    The main strength of the blended learning model lies in its ability to address limitations of time and space, offering flexible and personalized learning pathways. It accommodates diverse learning styles and encourages independent study. Additionally, the integration of both digital and face-to-face methods promotes a more holistic learning experience.

    However, several weaknesses were also identified. The most prominent challenges include disparities in technological infrastructure across students and variability in lecturer readiness to adopt new technologies. These issues emphasize the critical need for strong institutional support, ongoing professional development for lecturers, and effective management of digital learning systems. Without these elements, the potential of the model may not be fully realized.

2. **Concept of an Effective Blended Learning Model**

    An effective blended learning model must be grounded in the principles of digital pedagogy—namely, meaningfulness, sustainability, and adaptability to the local educational context. The design produced in this study integrates these principles by addressing real-world challenges in the MPI program. It encourages student-centered learning, fosters digital competencies, and aligns with both institutional goals and student aspirations.

    By embedding project-based and collaborative learning into its core, the model supports the development of critical managerial and teamwork skills essential for future Islamic education leaders. The approach ensures that students experience more relevant, autonomous, and meaningful learning that is attuned to contemporary challenges in the digital era.

Analysis of Differences in Student Learning Outcomes

To evaluate the effectiveness of the developed blended learning model, a comparison was conducted between students taught using the new model and those using a conventional blended approach. Student learning outcomes were assessed through pre-tests and post-tests, with the data analyzed using a paired sample **t-test**. The test revealed a statistically significant improvement in post-test scores among students exposed to the newly developed model.

This indicates that the revised model more effectively supports the development of conceptual understanding and practical skills. The enhanced outcomes are attributed to the model's basis in real needs and its structured integration of online and offline learning activities. This balance allows for greater depth of learning and provides opportunities for students to engage actively with the content, both individually and collaboratively.

Design Concept of an Effective and Contextual Blended Learning Model for MPI FTK

Based on the results of the study and its implementation, a final design concept for a blended learning model suitable for the MPI FTK Study Program was established. The model adopts a 60% online and 40% face-to-face ratio to optimize flexibility while maintaining pedagogical closeness. The main platforms used are e-knows for LMS-based activities, Zoom/Google Meet for real-time sessions, and YouTube for asynchronous material delivery.

The instructional strategies employed include project-based learning and collaborative learning, which align with the program's aim of fostering leadership and management competencies. Assessment is conducted using a mixed approach that evaluates cognitive (via LMS quizzes (e-knows) and written tests), affective (through peer reviews and reflections), and psychomotor (via project implementation and presentations) domains. Furthermore, periodic training for lecturers in digital literacy and educational technology use is a core component to ensure successful and sustainable model implementation.

D. CONCLUSION

Based on the analysis of the research findings, it can be concluded that the development and implementation of a blended learning model in the Islamic Education Management (MPI) Study Program at the Faculty of Tarbiyah and Teacher Training (FTK), UIN Sunan Gunung Djati Bandung, has resulted in a contextually responsive and pedagogically effective learning innovation. The model—developed through a modified Research and Development (R&D) approach—has demonstrated its capacity to enhance student learning outcomes not only in terms of cognitive achievement but also in fostering independent learning, time management, critical thinking, and collaborative skills.

The results of statistical analysis through pre-test and post-test comparisons confirm that the blended learning model significantly outperforms conventional learning approaches. This improvement is closely linked to the structured integration of online and face-to-face learning modalities, supported by a project-based and collaborative learning framework. The learning design, which allocates 60% for online and 40% for face-to-face engagement, proves to be effective in maintaining flexibility while preserving essential pedagogical interactions.

The data analysis also reveals that the effectiveness of the model is highly dependent on several key factors: the digital readiness of lecturers, the availability of supportive learning infrastructure, and institutional commitment to continuous professional development. These findings emphasize the importance of building an ecosystem of support for digital transformation in Islamic higher education.

This research contributes new knowledge to the field of educational technology in Islamic higher education, particularly by offering a tested and adaptable blended learning design model that aligns with the realities of post-pandemic pedagogy.

Moreover, the model serves not only as a solution for current instructional challenges but also as a strategic response to broader educational transformation goals in the 21st century.

Future research is encouraged to explore the longitudinal impact of blended learning on student character development, digital ethics, and spiritual intelligence within the MPI context. Additionally, comparative studies across different Islamic higher education institutions could provide further insights into the scalability and adaptability of the model. Research currently underway includes a deeper investigation into lecturer digital competence and student engagement patterns across various blended learning formats, which is expected to further refine and enrich the model's implementation framework.

Conflicts of Interest

The authors declare no conflict of interest. All stages of the research, from data collection to analysis and interpretation, were conducted independently and objectively without any financial, professional, or personal relationships that could be perceived to influence the outcomes or findings of this study.

Author contributions

All authors contributed significantly to the research and writing process in accordance with established authorship guidelines. **Badrudin** (First Author) conceptualized the study design, led the research development, conducted data analysis, and drafted the initial manuscript. **Supiana** (Second Author) provided critical supervision, methodological support, and contributed to the refinement of the research instruments and manuscript revision. **Yuli Marlina** (Third Author and Translator) contributed to data interpretation, translation of the manuscript into English, and final proofreading to ensure clarity and accuracy in presentation. All authors have read and approved the final version of the manuscript.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request. All relevant data generated or analyzed during this research, including pre-test and post-test results, observation notes,

interview transcripts, and supporting documents, have been stored securely and can be provided for academic and non-commercial purposes.

Disclaimer

The views and opinions expressed in this article are solely those of the authors and do not necessarily reflect the official policy or position of UIN Sunan Gunung Djati Bandung or any affiliated institutions or funders.

REFERENCES

Abdullah, M. Z., Hakim, M. A., & Salsabila, U. H. (2022). Pentingnya Memperkuat Eksistensi Pendidkan Islam Era ERA 4.0. *EL-HIKMAH: Jurnal Kajian Dan Penelitian Pendidikan Islam*. https://doi.org/10.20414/elhikmah.v15i2.4194

Aisy, S. R., & Hudaidah, H. (2021). Pendidikan Indonesia Di Era Awal Kemerdekaan Sampai Orde Lama. *EDUKATIF: JURNAL ILMU PENDIDIKAN*. https://doi.org/10.31004/edukatif.v3i2.327

Aka, K. A. (2019). Integration Borg & Gall (1983) and Lee & Owen (2004) models as an alternative model of design-based research of interactive multimedia in elementary school. *Journal of Physics: Conference Series*. https://doi.org/10.1088/1742-6596/1318/1/012022

Amiti, F. (2020). Synchronous And Asynchronous E-Learning. *European Journal of Open Education and E-Learning Studies*. https://doi.org/10.46827/ejoe.v5i2.3313

Azizi, S. M., Roozbahani, N., & Khatony, A. (2020). Factors affecting the acceptance of blended learning in medical education: application of UTAUT2 model. *BMC Medical Education*. https://doi.org/10.1186/s12909-020-02302-2

Badrudin, B., & Nurdin, R. (2019). SIM (Sistem Informasi Manajemen) Kurikulum Perguruan Tinggi Keagamaan Islam Berbasis Cms Wordpress. *Ta'dib*. https://doi.org/10.31958/jt.v22i1.1416

Bizami, N. A., Tasir, Z., & Kew, S. N. (2023). Innovative pedagogical principles and technological tools capabilities for immersive blended learning: a systematic literature review. *Education and Information Technologies*. https://doi.org/10.1007/s10639-022-11243-w

Chukhray, N., Mrykhina, O., & Izonin, I. (2022). Holistic Approach to R&D Products' Evaluation for Commercialization under Open Innovations. *Journal of Open Innovation: Technology, Market, and Complexity*. https://doi.org/10.3390/joitmc8010009

Corey, L., Mascola, J. R., Fauci, A. S., & Collins, F. S. (2020). A strategic approach to COVID-19 vaccine R&D. *Science*. https://doi.org/10.1126/science.abc5312

Cronje, J. C. (2020). Towards a new definition of blended learning. *Electronic Journal of E-Learning*. https://doi.org/10.34190/EJEL.20.18.2.001

El-Sapa, S., Almoneef, A. A., Lotfy, K., A. El-Bary, A., & Saeed, A. M. (2022). Moore-Gibson-Thompson theory of a non-local excited semiconductor medium with stability studies. *Alexandria Engineering Journal*. https://doi.org/10.1016/j.aej.2022.05.036

Fàbregues, S., Paré, M. H., & Meneses, J. (2019). Operationalizing and Conceptualizing Quality in Mixed Methods Research: A Multiple Case Study of the Disciplines of

Education, Nursing, Psychology, and Sociology. *Journal of Mixed Methods Research*. https://doi.org/10.1177/1558689817751774

Goldstein, E. A., Merrick, M. J., & Koprowski, J. L. (2018). Low survival, high predation pressure present conservation challenges for an endangered endemic forest mammal. *Biological Conservation*. https://doi.org/10.1016/j.biocon.2018.02.030

Hamzah, Tambak, S., Hamzah, M. L., Purwati, A. A., Irawan, Y., & Umam, M. I. H. (2022). Effectiveness of Blended Learning Model Based on Problem-Based Learning in Islamic Studies Course. *International Journal of Instruction*. https://doi.org/10.29333/iji.2022.15242a

Heinbach, D. (2022). Storytelling (Online Discussions/Discussion Quality). *DOCA - Database of Variables for Content Analysis*. https://doi.org/10.34778/5w

Jebb, A. T., Ng, V., & Tay, L. (2021). A Review of Key Likert Scale Development Advances: 1995–2019. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2021.637547

Jones, D. A. (2023). A Review and Critical Analysis of Qualitative Methodologies and Data-Collection Techniques Used for Code-Switching Research. *American Journal of Qualitative Research*. https://doi.org/10.29333/ajqr/12988

Lestari, S. D., & Maunah, B. (2022). Dasar - Dasar Yuridis Sistem Pendidikan Nasional. *Jurnal Ilmu Pendidikan Sekolah Dasar*. https://doi.org/10.19184/jipsd.v9i3.31876

Li, X., Yang, Y., Chu, S. K. W., Zainuddin, Z., & Zhang, Y. (2022). Applying blended synchronous teaching and learning for flexible learning in higher education: an action research study at a university in Hong Kong. *Asia Pacific Journal of Education*. https://doi.org/10.1080/02188791.2020.1766417

Marlina, Y. (2022). A Conceptualization of Online Collaborative English Learning for Undergraduate Students in the New Normal Post Covid-19 Era. *EDUTEC : Journal of Education And Technology*. https://doi.org/10.29062/edu.v5i3.317

Maydiantoro, A. (2021). Model Penelitian Pengembangan (Borg & Gall, 1983). *Jurnal Pengembangan Profesi Pendidik Indonesia*.

Moorhouse, B. L., & Wong, K. M. (2022). Blending asynchronous and synchronous digital technologies and instructional approaches to facilitate remote learning. *Journal of Computers in Education*. https://doi.org/10.1007/s40692-021-00195-8

Morantz, T., & Costopoulos, A. (2021). BRUCE GRAHAM TRIGGER (1937-2006). *Recherches Amérindiennes Au Québec*. https://doi.org/10.7202/1081870ar

Mumu, J., Tanujaya, B., Charitas, R., & Prahmana, I. (2022). Likert Scale in Social Sciences Research: Problems and Difficulties. *FWU Journal of Social Sciences*. https://doi.org/10.51709/19951272/Winter2022/7

Mutasar, A., Masril, M., David, D., Hendriani, S., & Fitriani, W. (2019). Pengaruh Kecerdasan Emosional Dan Kepribadian Terhadap Kepemimpinan Kepala Madrasah Di Kabupaten Agam. *Al-Fikrah: Jurnal Manajemen Pendidikan*. https://doi.org/10.31958/jaf.v7i2.1590

Olugbo, M. A., Obienu, A. C., & Amadin, F. I. (2023). Impact of Effective Communication on Institutional Performance: Case Study in Higher Learning Institutions. *Journal of*

Education, Society and Behavioural Science. https://doi.org/10.9734/jesbs/2023/v36i101264

P., G. (2021). Memahami Tujuan dan Fungsi Pendidikan di Indonesia. *2021.*

Park, J. H., & Shin, K. (2018). Efficiency of government-sponsored R & D projects: A metafrontier DEA approach. *Sustainability (Switzerland).* https://doi.org/10.3390/su10072316

Putri, S. N., Anak Agung Gede Agung, & I Kadek Suartama. (2023). E-module with the Borg and Gall Model with a Contextual Approach to Thematic Learning. *Journal for Lesson and Learning Studies.* https://doi.org/10.23887/jlls.v6i1.57482

Rukiyati, R. (2020). Tujuan pendidikan nasional dalam perspektif Pancasila. *HUMANIKA.* https://doi.org/10.21831/hum.v19i1.30160

Sefriani, R., Sepriana, R., Wijaya, I., Radyuli, P., & Menrisal. (2021). Blended learning with edmodo: The effectiveness of statistical learning during the covid-19 pandemic. *International Journal of Evaluation and Research in Education.* https://doi.org/10.11591/IJERE.V10I1.20826

Shakeel, S. I., Haolader, M. F. A., & Sultana, M. S. (2023). Exploring dimensions of blended learning readiness: Validation of scale and assessing blended learning readiness in the context of TVET Bangladesh. *Heliyon.* https://doi.org/10.1016/j.heliyon.2022.e12766

Sharma, L., & Srivastava, M. (2020). Teachers' motivation to adopt technology in higher education. *Journal of Applied Research in Higher Education.* https://doi.org/10.1108/JARHE-07-2018-0156

Simplilearn. (2022). What Is Data Collection: Methods, Types, Tools, and Techniques. *Simplilearn.*

Sumarmi, Bachri, S., Irawan, L. Y., & Aliman, M. (2021). E-module in blended learning: Its impact on students' disaster preparedness and innovation in developing learning media. *International Journal of Instruction.* https://doi.org/10.29333/iji.2021.14412a

Syaiviana, I., Sari, I. Y., Adinda, P., Pratiwi, V. B., & Anggraini, W. (2023). Pengembangan Modul Pembelajaran Matematika Berbasis Web Berdasarkan Langkah Borg and Gall. *Trigonometri: Jurnal Matematika Dan Ilmu Pengetahuan Alam.*

Takona, J. P. (2024). Research design: qualitative, quantitative, and mixed methods approaches / sixth edition. *Quality and Quantity.* https://doi.org/10.1007/s11135-023-01798-2

Thomas, R. M., & Brubaker, D. L. (2024). Data Collection Techniques and Instruments. In *Theses and Dissertations.* https://doi.org/10.5040/9798216025450.ch-008

Untoroseto, D., & Triayudi, A. (2023). Analysis of Blended Learning Development in Distance Learning in Variation of Borg & Gall and Addie Models. *Journal La Multiapp.* https://doi.org/10.37899/journallamultiapp.v4i6.973

Varkey, T. C., Varkey, J. A., Ding, J. B., Varkey, P. K., Zeitler, C., Nguyen, A. M., … Thomas, C. R. (2023). Asynchronous learning: a general review of best practices for the 21st century. *Journal of Research in Innovative Teaching and Learning.*

https://doi.org/10.1108/JRIT-06-2022-0036

Weyant, E. (2022). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 5th Edition. *Journal of Electronic Resources in Medical Libraries*. https://doi.org/10.1080/15424065.2022.2046231