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RECONSTRUCTING A PROGRESSIVISM-BASED EDUCATIONAL PARADIGM TO ADDRESS THE CHALLENGES OF SOCIETY 5.0

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Abstract: *The rapid advancement of digital technologies, including Artificial Intelligence (AI), the Internet of Things (IoT), Big Data, cloud computing, and cyber-physical systems, has transformed education and human life. The emergence of Society 5.0, introduced by Japan, promotes a human-centered approach to technological development, requiring education to cultivate technological competence alongside critical thinking, creativity, collaboration, communication, and moral character. In this context, John Dewey's philosophy of progressivism remains relevant through its emphasis on experiential learning, problem-solving, democratic education, and student-centered learning. This study aims to reconstruct a progressivism-based educational paradigm to address the challenges of Society 5.0. A qualitative literature review was employed by synthesizing recent Scopus-indexed international journal articles published within the last five years and scholarly books published within the last ten years. The findings indicate that the core principles of progressivism are compatible with the demands of Society 5.0 but require reconstruction through the integration of intelligent technologies, personalized learning, digital and data literacy, technological ethics, and twenty-first-century competencies. The novelty of this study is the Humanistic-Digital Progressivism Model, which integrates progressive humanistic values with digital technology as a foundation for future education. The study concludes that this reconstructed paradigm can foster adaptive, innovative, ethical, and human-centered learning while supporting lifelong learning, social responsibility, and holistic human development in Society 5.0.*

Keywords: *Educational Paradigm, Progressivism, Challenges, Society 5.0*

Abstrak: Pesatnya kemajuan teknologi digital termasuk Kecerdasan Buatan (AI), (IoT), komputasi awan, dan sistem siber-fisik telah mengubah dunia pendidikan dan kehidupan manusia. Munculnya konsep Society 5.0 yang diperkenalkan oleh Jepang mendorong pendekatan pengembangan teknologi yang berpusat pada manusia; hal ini menuntut pendidikan untuk menumbuhkan kompetensi teknologi sekaligus kemampuan berpikir kritis, kreativitas, kolaborasi, komunikasi, dan karakter moral. Dalam konteks ini, filosofi progresivisme John Dewey tetap relevan berkat penekanannya pada pembelajaran berbasis pengalaman, pemecahan masalah, pendidikan demokratis, dan pembelajaran yang berpusat pada siswa. Penelitian ini bertujuan untuk merekonstruksi paradigma pendidikan berbasis progresivisme guna menjawab tantangan Society 5.0. Metode tinjauan pustaka kualitatif digunakan dengan menyintesis artikel jurnal internasional terindeks Scopus yang diterbitkan dalam lima tahun terakhir serta buku-buku ilmiah yang diterbitkan dalam sepuluh tahun terakhir. Temuan penelitian menunjukkan bahwa prinsip-prinsip utama progresivisme selaras dengan tuntutan Society 5.0, namun memerlukan rekonstruksi melalui integrasi teknologi cerdas, pembelajaran yang dipersonalisasi, literasi digital dan data, etika teknologi, serta kompetensi abad ke-21. Kebaruan penelitian ini terletak pada Model Progresivisme Humanistik-Digital, yang memadukan nilai-nilai humanistik progresif dengan teknologi digital sebagai landasan bagi pendidikan masa depan. Penelitian ini menyimpulkan bahwa paradigma yang telah direkonstruksi tersebut mampu mendorong pembelajaran yang adaptif, inovatif, etis, dan berpusat pada manusia, sekaligus mendukung pembelajaran sepanjang hayat, tanggung jawab sosial, dan pengembangan manusia secara holistik di era Society 5.0.

Kata Kunci: Paradigma Pendidikan, Prograsivisme, Tantangan, Society 5.0

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INTRODUCTION

The development of science and technology in the twenty-first century has fundamentally transformed the ways in which people work, communicate, access information, and learn. The emergence of Artificial Intelligence (AI), the Internet of Things (IoT), big data, cloud computing, machine learning, and cyber-physical systems has shaped an increasingly interconnected and digitalized societal ecosystem. These transformations have gained a human-centered orientation through the concept of Society 5.0, which positions technology as an instrument for addressing social problems and improving human quality of life (Fukuyama, 2020). In the educational context, this transformation not only creates opportunities for the digitalization of learning but also demands a paradigm shift in how knowledge is constructed, learning experiences are designed, and relationships between humans and technology are established.

These changes have become increasingly evident in the development of Education 5.0. Education can no longer focus exclusively on the acquisition of factual knowledge; rather, it is expected to foster critical thinking, creativity, communication, collaboration, problem-solving, digital literacy, data literacy, and lifelong learning competencies (OECD, 2021; UNESCO, 2021). A study by Crompton and Burke (2023), examining 138 studies, identified a rapid increase in research on AI in higher education, particularly concerning personalization, prediction, assessment, and adaptive systems. Similarly, Wang et al. (2024), through an analysis of 2,223 publications and an in-depth examination of 125 articles, demonstrated that AI in education has developed into an extensive research field encompassing diverse applications and approaches. These findings indicate that AI is increasingly becoming an integral component of the educational ecosystem. However, technological development is progressing more rapidly than educational institutions' capacity to formulate adequate pedagogical and ethical frameworks.

Educational transformation cannot be reduced merely to the adoption of technology. Zawacki-Richter et al. (2019) demonstrated that research on AI in higher education remains relatively strongly oriented toward system and technological development, while educators' perspectives and pedagogical implications have received comparatively limited attention. The findings of Crompton and Burke (2023) reveal the rapid expansion of research in this field while simultaneously highlighting the need for greater attention to the contextual implementation of AI in educational processes. Furthermore, Kasneci et al. (2023) emphasized that large language models, such as ChatGPT, offer opportunities to generate learning materials, enhance interaction, and personalize learning. Nevertheless, their utilization requires technological literacy, critical thinking skills, information verification, human oversight, and clearly defined pedagogical strategies. Therefore, the fundamental issue is no longer whether technology can be used in education, but rather how it can be utilized without diminishing human agency, creativity, reflection, and responsibility.

This question brings the philosophy of education back into focus. Technology does not automatically determine educational objectives because it fundamentally functions as an instrument. Philosophy is necessary to establish what kind of human being education seeks to develop, what forms of learning experiences are considered meaningful, and how technology should be positioned within the relationships among learners, educators, knowledge, and society. In this context, John Dewey's progressivism demonstrates considerable relevance. Dewey

conceptualized education as a process of reconstructing experience through which individuals develop their intellectual, social, and moral capacities through active interaction with their environment. The principles of learning by doing, experience, reflection, problem-solving, and participation position learners as active subjects in the educational process (Dewey, 2018). This orientation aligns with the demands of Society 5.0, which requires learners to be adaptive, creative, reflective, collaborative, and capable of addressing complex problems.

The relevance of progressivism becomes increasingly apparent as education shifts from knowledge transmission models toward more active and learner-centered approaches. Literature on digital learning indicates that technology can expand learning experiences, enhance flexibility, and facilitate more personalized learning processes (Tlili et al., 2023). Research on intelligent tutoring systems also demonstrates the potential of AI to provide feedback and adaptive learning experiences tailored to learners' individual needs (Lin et al., 2023). However, these benefits do not eliminate fundamental concerns regarding the position of human beings within digital systems. Mouta et al. (2024), through a systematic literature review, identified several blind spots in research on AI ethics in education, including issues of agency, inclusion, privacy, and human–technology relationships. Consequently, UNESCO (2023) emphasizes the importance of a human-centered approach to generative AI utilization that protects human agency, privacy, equity, and pedagogical meaningfulness.

These issues reveal a paradox within the digital transformation of education. On the one hand, AI has the capacity to improve personalization, efficiency, information accessibility, and support for learning processes. On the other hand, its utilization may generate concerns regarding privacy, algorithmic bias, transparency, technological dependency, and the diminishing role of human control. Bond et al. (2024), through a meta-systematic review of AI research in higher education, identified the dominance of studies concerning adaptive systems and personalization while simultaneously highlighting the need for greater attention to ethical, methodological, contextual, and collaborative dimensions. Research on human-centered learning analytics and AI in education (2024) also indicates that end-user involvement, particularly that of learners and educators, in system design remains limited, while issues of human control, security, reliability, and trust require greater consideration. Meanwhile, a systematic review of responsible AI identified five essential characteristics: fairness and equity, privacy and security, non-maleficence and beneficence, agency and autonomy, and transparency and intelligibility (2024).

These conditions demonstrate that classical progressivism cannot simply be transferred into digital environments without conceptual reconstruction. Deweyan progressivism emerged within a social context that preceded the development of generative AI, learning algorithms, learning analytics, big data, and adaptive learning systems. Consequently, an important question arises: how can the principles of experience, freedom in learning, reflection, and learning by doing be sustained when learning experiences are increasingly mediated by algorithms and artificial intelligence? This question has not yet received sufficient attention within two bodies of literature that have largely developed independently. Research on Society 5.0 and Education 5.0 tends to focus on technology and future competencies, whereas studies on progressivism predominantly address active learning, experience, and student-centered learning. The integration of these perspectives within a philosophical framework that explicitly incorporates AI, human agency, digital ethics, and pedagogical control remains relatively underexplored.

Accordingly, the research gap addressed in this study does not simply concern the limited availability of research on Society 5.0 or progressivism. Rather, it concerns a conceptual gap in

integrating the philosophy of progressivism with the demands of human-centered AI and the educational transformation associated with Society 5.0. This gap is significant because educational technology is not entirely neutral. Mouta et al. (2024) emphasize the importance of understanding AI as a technology with ethical and pedagogical consequences, while UNESCO (2023) underscores that AI utilization must preserve human agency and ensure that technology genuinely benefits both learners and educators. Other studies on AI ethics in education also indicate that privacy and data security constitute predominant concerns, particularly when AI systems collect learners' personal data (2024).

Based on these conditions, this study advances the argument that progressivism remains relevant as a philosophical foundation for education in Society 5.0; however, its relevance requires paradigm reconstruction rather than mere technological adaptation. Deweyan principles, including experience, learning by doing, reflection, problem-solving, collaboration, and learner agency, must be preserved while being expanded to incorporate digital literacy, AI ethics, algorithmic awareness, data protection, human–AI collaboration, and social responsibility. Drawing upon this synthesis, the study proposes the concept of Humanistic-Digital Progressivism, an educational paradigm that integrates progressivism with digital technology and AI while maintaining human beings as the central focus of educational objectives and the primary agents of educational processes.

Humanistic-Digital Progressivism is constructed around three fundamental orientations: humanistic orientation, which positions human dignity, character, agency, and social relationships as the primary objectives of education; progressive pedagogy, which emphasizes experience, reflection, learning by doing, collaboration, and problem-solving; and ethical-digital integration, which positions technology and AI as pedagogical instruments that must be utilized critically, ethically, inclusively, transparently, and responsibly. Within this framework, AI is not positioned as a replacement for teachers or as an entity that takes over learners' thinking processes, but rather as a supporting technology that expands the possibilities of learning experiences under human control.

Based on this argument, this study aims to analyze the reconstruction of a progressivism-based educational paradigm in addressing Society 5.0 through a literature review. Specifically, this study addresses five research questions: (1) What are the characteristics of educational paradigm transformation in Society 5.0? (2) What are the limitations of classical progressivism in responding to the development of digital technology and AI? (3) How can progressivism be reconstructed to address the demands of Society 5.0? (4) How can Humanistic-Digital Progressivism be conceptualized as a future educational paradigm? and (5) What are its implications for AI utilization, the implementation of the Merdeka Curriculum, and the development of twenty-first-century competencies? The novelty of this study lies in its conceptual construction, which brings together progressive humanism, experience-based pedagogy, and ethical digital integration within a unified educational paradigm designed to address the challenges of Society 5.0.

METHODS

This study employed a qualitative approach using a literature study method to critically examine various theories, concepts, and research findings related to progressivism, Society 5.0, Education 5.0, digital transformation, and Artificial Intelligence in Education. A literature study was selected because it enables researchers to examine, compare, and synthesize various academic sources to develop conceptual understanding and identify research gaps (Snyder, 2019). The data sources consisted of international journal articles published between 2020 and 2025, retrieved from Scopus, Web of Science, ScienceDirect, SpringerLink, Taylor & Francis Online,

Emerald Insight, Sage Journals, and Google Scholar, as well as academic books relevant to educational philosophy, progressivism, educational technology, and digital education transformation. The literature search was conducted using the following keywords: "Progressivism Education," "John Dewey," "Society 5.0," "Education 5.0," "Digital Learning," "Artificial Intelligence in Education," "Humanistic Education," "Human-Centered AI," and "AI Ethics in Education." Literature was selected based on its relevance to the research focus, source credibility, publication recency, and theoretical and empirical contributions to discussions of progressivism and educational transformation. The data analysis was conducted through four stages: literature identification, source selection and evaluation, thematic analysis, and critical synthesis. Thematic analysis was employed to categorize the literature into several key themes, including Society 5.0 and Education 5.0, the principles of Deweyan progressivism, developments in AI in education, human agency, ethics, privacy, autonomy, and the need for educational paradigm transformation. Subsequently, critical synthesis was undertaken by comparing findings and arguments across different sources to identify the continuities and limitations of classical progressivism and to formulate the need for reconstructing an educational paradigm that aligns with the characteristics of digital society.

RESULT AND DISCUSSION

1. The Nature of Society 5.0 and the Transformation of Educational Paradigms

The concept of Society 5.0 was introduced by the Japanese government as a vision of a future society that places human beings at the center of technological utilization. This concept integrates physical and cyberspace through the application of Artificial Intelligence (AI), the Internet of Things (IoT), Big Data, robotics, and various digital technologies to address social problems and improve human quality of life (Fukuyama, 2020; Deguchi et al., 2020). Unlike the Fourth Industrial Revolution, which places greater emphasis on automation and efficiency, Society 5.0 shifts the orientation of technology toward a human-centered approach. Consequently, technological success is not measured solely by sophistication and efficiency but also by its contribution to human well-being and the sustainability of human life.

These transformations have significant implications for educational paradigms. Education in the Society 5.0 era is expected to develop critical thinking, creativity, communication, collaboration, digital literacy, data literacy, and complex problem-solving skills (OECD, 2021). The development of Education 5.0 further demonstrates that technology is increasingly utilized to support personalized learning, analyze learners' needs, and develop adaptive learning environments (Crompton & Burke, 2023; Wang et al., 2024). Accordingly, learners can no longer be positioned merely as recipients of knowledge but must be recognized as active subjects who construct knowledge, solve problems, and adapt to changing circumstances.

These transformations also reveal the limitations of conventional educational paradigms that place excessive emphasis on knowledge transmission. Fullan (2020) explains that future education requires deep learning competencies, encompassing character, citizenship, collaboration, communication, creativity, and critical thinking. These competencies cannot be optimally developed through one-way instructional processes; rather, they require learning experiences that are active, contextual, collaborative, and reflective. At this point, John Dewey's progressivism becomes particularly relevant because it positions learners' experiences and activities as the primary foundations of the educational process.

Based on this literature synthesis, the authors argue that Society 5.0 fundamentally represents not merely a technological transformation but also a paradigm shift in the relationship between humans, knowledge, and technology. Consequently, educational transformation cannot be adequately achieved through the digitalization of learning tools alone. Technology must be situated within a pedagogical framework that ensures learners remain the central subjects of the learning process. From the authors' perspective, the convergence between Society 5.0 and progressivism lies in their shared orientation toward experience, creativity, problem-solving, collaboration, and holistic human development. However, this convergence simultaneously generates new challenges because learning experiences in Society 5.0 are increasingly mediated by technology and algorithms. Therefore, the relevance of progressivism must be critically examined before it can serve as a foundation for future education.

2. Critiques of Classical Progressivism in the Era of Society 5.0

Although progressivism is relevant to the educational demands of the twenty-first century, its application within the context of Society 5.0 encounters challenges that did not exist when Dewey's ideas were originally developed. Dewey positioned experience at the center of education and emphasized that learning takes place through individuals' active engagement with their environment (Dewey, 2018). However, contemporary learning environments are no longer confined to physical spaces. Learners now engage in learning through digital platforms, social media, virtual environments, adaptive systems, learning analytics, and AI. Consequently, learning experiences have shifted from being primarily direct experiences toward increasingly digitally and algorithmically mediated experiences.

These transformations generate epistemological and pedagogical challenges. Within classical progressivism, learners acquire experiences through interactions with their environment and engage in reflection to construct knowledge. In digital environments, however, some of these experiences are curated by algorithms. AI systems can determine information recommendations, provide feedback, generate content, and even produce answers to problems encountered by learners. Kasneci et al. (2023) demonstrate that large language models have considerable potential to support learning, but their utilization also requires verification skills, critical thinking, and human oversight. The problem becomes increasingly complex when learners accept AI-generated outputs without independently engaging in inquiry and reflection.

Another critique concerns the concept of learner autonomy. Progressivism emphasizes learners' freedom, activity, and participation in the learning process. However, such freedom does not imply directionless learning. Learners still require pedagogical facilitation, structure, and scaffolding. In digital environments, this challenge becomes more complex because learners encounter enormous volumes of information with varying levels of quality and validity. Zawacki-Richter et al. (2019) demonstrate that developments in AI in education have largely focused on technological systems and applications, while the position and role of educators in these developments require greater attention.

AI also introduces ethical challenges that extend the critique of classical progressivism. Mouta et al. (2024) identified several blind spots in the literature on AI ethics in education, particularly concerning agency, inclusion, privacy, and the human dimensions of AI utilization. Bond et al. (2024) similarly highlighted the need for greater attention to ethics, collaboration, and methodological rigor in AI education research. These findings indicate that technology-based education cannot focus exclusively on effectiveness and personalization; it must also consider autonomy, privacy, equity, transparency, and human responsibility.

The authors argue that the limitations of classical progressivism do not originate from its principles of experience, freedom, and learner activity, but rather from the historical context

within which these principles were formulated. Dewey did not encounter algorithmically constructed experiences, generative AI, big data, or adaptive learning systems. Therefore, the concept of experience needs to be expanded from direct experience to mediated experience, referring to learning experiences that occur through physical, virtual, digital, or AI-mediated interactions while remaining subject to critical reflection. Similarly, learner autonomy can no longer be understood merely as freedom in learning; instead, it must evolve into critical digital agency, defined as learners' capacity to understand, evaluate, verify, and exercise control over their use of technology. Thus, the critique of progressivism should not serve as a justification for abandoning it but rather as the foundation for its reconstruction.

3. Reconstructing a Progressivism-Based Educational Paradigm

The reconstruction of progressivism is necessary because the educational environment has undergone structural transformations. Dewey's principle of education as the reconstruction of experience remains relevant; however, the concept of experience must be expanded in accordance with the characteristics of digital society (Dewey, 2018). Digital technologies and AI enable learners to acquire experiences through simulations, virtual environments, adaptive learning, learning analytics, and human–machine interactions. Consequently, learning is no longer restricted to learning by doing but can evolve into learning by experiencing, namely, learning through physical and digital experiences accompanied by reflection and inquiry.

Reconstruction is also necessary regarding the role of teachers. Within classical progressivism, teachers function as facilitators of learning experiences. In Society 5.0, this role does not disappear; rather, it becomes increasingly important. Teachers need to assist learners in evaluating information, understanding AI-generated outputs, identifying biases, and utilizing technology responsibly. Accordingly, AI does not replace teachers but can serve as a source of support within the learning process. Kasneci et al. (2023) demonstrate that the utilization of LLMs in education offers pedagogical opportunities while simultaneously requiring human oversight and critical literacy. This highlights the importance of pedagogical relationships that do not position technology as the sole authority in the learning process.

Further reconstruction concerns the objectives of education. Society 5.0 education should not merely produce individuals with digital competencies but should develop individuals capable of using technology critically, ethically, and responsibly. Biesta (2022) identifies qualification, socialization, and subjectification as three educational functions that must be considered simultaneously. This framework is relevant for expanding progressivism because education is responsible not only for developing competencies but also for fostering identity, social responsibility, autonomy, and individuals' capacity to live together within society.

Based on this analysis, the authors propose that the reconstruction of progressivism should encompass four fundamental elements: experience, learner agency, the role of teachers, and educational objectives. Learning by doing needs to be expanded into learning by experiencing and reflecting; learner autonomy needs to evolve into critical digital agency; teachers should function not only as facilitators but also as human pedagogical guides in their interactions with AI; and educational objectives should integrate digital competencies with character, ethics, social responsibility, and reflective abilities. Therefore, the reconstruction of progressivism does not constitute a replacement of Dewey's ideas but rather an epistemological and pedagogical expansion that enables progressivism to function within an increasingly digitalized and AI-mediated environment.

4. Humanistic-Digital Progressivism: A Conceptual Model of Education in Society 5.0

Based on the synthesis of existing theories and previous research, this study proposes Humanistic-Digital Progressivism as a reconstructive educational paradigm for Society 5.0. This paradigm is grounded in the assumption that technological advancement must not be separated from the humanizing objectives of education. Biesta (2022) emphasizes that education is not solely concerned with qualification but also encompasses socialization and subjectification. These three functions establish the foundation for ensuring that technological utilization is directed toward developing competencies while simultaneously fostering individuals with autonomy, character, and social responsibility.

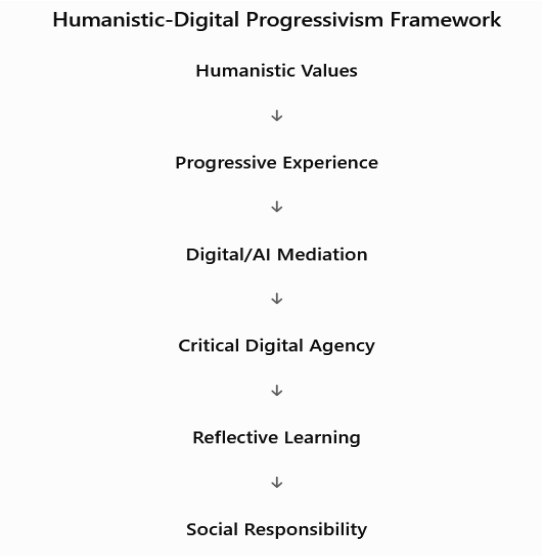
Humanistic-Digital Progressivism is constructed upon three fundamental foundations. First, humanistic orientation, which positions human dignity, character, empathy, autonomy, and social responsibility as the primary objectives of education. Second, progressive pedagogy, which preserves the principles of experience, learning by doing, inquiry, reflection, collaboration, and problem-solving that characterize Deweyan progressivism. Third, ethical-digital integration, which incorporates AI and digital technologies as learning instruments while maintaining considerations of privacy, equity, transparency, security, and human control. This principle is consistent with UNESCO (2023), which emphasizes the importance of a human-centered approach to the utilization of generative AI in education.

The model further requires a connecting element that distinguishes it from both classical progressivism and conventional digital learning: critical digital agency. Learners must not merely possess the ability to use AI but must also be capable of questioning, evaluating, verifying, and reflecting upon technological outputs. In this context, AI is positioned as pedagogical support and a cognitive partner, rather than as a replacement for teachers or learners' own thinking processes. Consequently, the relationship between humans and AI is collaborative while ensuring that final decisions and accountability remain with humans.

The authors conclude that Humanistic-Digital Progressivism represents a reconstruction of progressivism that preserves Dewey's humanistic foundations while responding to the realities of education increasingly mediated by technology and AI. The novelty of this model does not lie in the utilization of AI in learning, as this has already been extensively examined, but rather in positioning AI within a philosophical framework of progressivism that explicitly establishes human agency, critical reflection, ethical responsibility, and experiential learning as the governing principles of technological utilization. Within this model, technology addresses the needs for efficiency and personalization, progressivism provides the pedagogical orientation, while humanism establishes the normative boundaries governing the purposes of technological utilization.

Accordingly, the conceptual relationship of the model can be formulated as follows:

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CONCLUSION

This study demonstrates that the transformation toward Society 5.0 necessitates a shift in educational paradigms from knowledge transmission-oriented approaches toward human-centered learning that emphasizes experience, creativity, reflection, collaboration, and problem-solving supported by digital technology. This study also reveals that John Dewey's principles of progressivism remain relevant; however, classical progressivism has certain limitations when confronted with learning experiences that are increasingly mediated by technology, algorithms, and Artificial Intelligence. Therefore, this study reconstructs progressivism through the concept of Humanistic-Digital Progressivism, which integrates humanistic orientation, progressive pedagogy, and ethical-digital integration, with critical digital agency serving as a fundamental element connecting learners with technology. Within this paradigm, AI is not positioned as a replacement for teachers or as a substitute for learners' thinking processes, but rather as a pedagogical instrument that supports experiential learning, personalization, inquiry, and problem-solving under human control. The primary contribution of this study lies in extending progressivism from an experience-based paradigm toward a framework capable of critically and ethically explaining the relationships among humans, digital experiences, and AI. Accordingly, Humanistic-Digital Progressivism offers a conceptual framework that can serve as a foundation for developing learning practices and implementing the Merdeka Curriculum in ways that are not only adaptive to technological advancements but also preserve learners' agency, character, social responsibility, and humanistic dimensions in responding to the challenges of Society 5.0.

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