Volume 6 nomor 1 Desember 2024
Available online at https://ejournal.stit-almubarok.ac.id/index.php/DIMAR
Email: dimar@stit-almubarok.ac.id | EISSN: 2579-3683 | Published by Sekolah Tinggi Ilmu Tarbiyah Al Mubarok Lampung Tengah

Policy Management in the 5.0 Era in Education Units

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Abstract: The 5.0 era demands deep digital transformation in all sectors, and education units are no exception. This article aims to discuss policy management in the context of education, especially in the 5.0 era, which is characterized by the integration of technology and humanist approaches in the learning process. The 5.0 era prepares students to face the challenges of the future, and requires educational units to adapt to rapid social and technological changes. This study uses a qualitative method with the Systematic Literature Review (SLR) approach by examining the results of research that have been published in journal articles that discuss the 5.0 era in educational units. The results of the study show that effective policy management in the 5.0 era includes the development of a curriculum that is responsive to industry needs, improving teacher competence through technology-based training, and collaboration between schools, parents and the community. Then, the article identifies the challenges faced by education units in implementing the policy, including resource limitations and resistance to change. It is hoped that these findings can provide insight for stakeholders in formulating better policy management strategies to improve the quality of education in the 5.0 era.

Keywords: Policy Management, Education, Era 5.0, Curriculum, Technology.

DOI: 10.58577/dimar.v6i1.262

INTRODUCTION

Education is the main foundation in the development of society, and madrasah as an Islamic educational institution has a very crucial role in shaping the character of the younger generation.[1] In the midst of rapid technological development and social dynamics, madrasahs are faced with the challenge of not only teaching academic knowledge, but also ethical and moral values that are relevant to the changing times.[2] Therefore, it is important to understand how education can adapt to the changes that occur in society.

Currently, we are in the era of society 5.0, starting with the application of advanced technologies such as artificial intelligence (AI) Internet of Things (IoT) and big data.[3] This era brings significant changes in various aspects of life, including education. The integration of these technologies not only offers operational efficiency, but also opens up new opportunities to enrich students' learning experience. In this context, education units must be able to utilize technology to create a more interactive and engaging learning environment.[4]

Era 5.0 demands rapid adaptation from education units to meet the needs of 21st century skills. These skills include collaboration, critical thinking and creativity are increasingly important in the ever-changing world of work. Therefore, education policy management must include a data-driven approach and collaboration of every stakeholder to ensure that the curriculum and teaching methods are relevant to the demands of the times.[5]

In this era, the learning process is no longer just a transfer of knowledge from educators to learners. Education must be able to facilitate learners to develop their knowledge, personality, attitude and independence.[6] Teachers have a central role in designing an efficient, effective and enjoyable learning process. Thus, the active involvement of teachers in presenting the right learning atmosphere is crucial to achieving educational goals.

In addition to technical challenges, the 5.0 era also demands social and ethical awareness in the application of technology in education. Policy management must consider the social impact of technological developments, including issues of digital divide and data privacy. It is

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[1] M. Shoffa Saifillah Al Faruq, M. Asep Fathur Rozi, and Ahmad Sunoko, "Implementation of the Juran Trilogy in Improving the Quality of Islamic Higher Education," *Al-Hayat: Journal of Islamic Education* 8, no. 1 (January 21, 2024): 169, https://doi.org/10.35723/ajie.v8i1.420.

[2] Anta Khoirul Miftahul Falah and Moch. Rizal Fuadiy, "Strategi Kepala Madrasah Dalam Meningkatkan Kualitas Pendidikan: Studi Kasus Pada MI Muhammadiyah Dukuh, Watulimo, Trenggalek," *DIMAR: Jurnal Pendidikan Islam* 5, no. 1 (December 25, 2023): 119–27, https://doi.org/10.58577/dimar.v5i1.172.

[3] Indri Via Yunita Sari, Estiti Rifngatul Kamila, and Nur Kholis, "Transformasi Model Pengembangan Kurikulum Pendidikan Islam Menuju Era Society 5,0," *Journal of Educational Research and Practice* 1, no. 1 (November 15, 2023): 28–43, https://doi.org/10.70376/jerp.v1i1.26.

[4] Abid Haleem et al., "Understanding the Role of Digital Technologies in Education: A Review," *Sustainable Operations and Computers* 3 (2022): 275–85, https://doi.org/10.1016/j.susoc.2022.05.004.

[5] Agariadne Dwinggo Samala et al., "Top 10 Most-Cited Articles Concerning Blended Learning for Introductory Algorithms and Programming: A Bibliometric Analysis and Overview," *International Journal of Interactive Mobile Technologies (IJIM)* 17, no. 05 (March 7, 2023): 57–70, https://doi.org/10.3991/ijim.v17i05.36503.

[6] Lia Sari and Siti Shalihah, "The Effectiveness of Learning Cycle 5E Model toward Students' Science Process Skills in Natural Science Subject," *Al-Adzka: Jurnal Ilmiah Pendidikan Guru Madrasah Ibtidaiyah* 13, no. 1 (July 7, 2023): 10–18, https://doi.org/10.18592/aladzkapgmi.v13i1.9148.

important for education units to formulate policies that focus not only on technical aspects but also on sustainability and human values.[7]

This research aims to provide insights into how education institutions can formulate and implement policies that are responsive to changes in the 5.0 era. By understanding the challenges and opportunities that exist, this research will discuss strategic steps that educational institutions can take to ensure that they not only prepare students for the future, but also contribute positively to an increasingly complex society.

METHOD

This research uses a qualitative approach with a Systematic Literature Review (SLR) approach to review research on the 5.0 era in education policy management. The main purpose of this research is to provide comprehensive insights into the implementation of education policy in the current digital era. Here are some steps of the research method that researchers will apply in this journal article.

a. Methodology, the research procedure involves identifying, evaluating and integrating research results that have been published in relevant journal articles. Data is systematically collected through a review of academic literature.[8]
b. Data Sources, the data used were scientific journals, research reports, official documents, and other electronic sources. These data sources were selected based on strict criteria to ensure the validity and reliability of the research results.
c. Search Procedures and criteria, relevant academic articles were identified through the keywords "education policy management" and "era 5.0" in the Google Scholar database. The publication limit was from 2015 to 2024. Articles were selected based on strict inclusion and exclusion criteria, as well as in-depth analysis of key themes such as digital transformation, policy management, adaptation to social and technological change, and challenges in policy implementation.[9]
d. Expected Outcomes, the results of this analysis are expected to provide comprehensive insights into the implementation of education policy in the current digital era. This analysis will help identify challenges and effective solutions in dealing with social and technological changes in the 5.0 era.

RESULTS AND DISCUSSION

Digital Transformation in Education

Digital transformation has changed almost every aspect of life, including education. With technological advancements, the way we learn and teach has also undergone significant changes. In this context, digital transformation in education refers to the use of digital technologies-such as computers, mobile devices and apps-to enhance the learning process, creating a more

[7] Ali Rahman, "Desain Model Dan Materi Pembelajaran Berbasis Teknologi Informasi," *AL-ISHLAH: Jurnal Pendidikan Islam* 16, no. 2 (December 12, 2018): 128–43, https://doi.org/10.35905/alishlah.v16i2.743.
[8] Aditya Zulmi Rahmawan and Zaenuriyah Effendi, "Implementasi Society 5.0 Dalam Kebijakan Dan Strategi Pendidikan Pada Pandemi Covid-19," *STRATEGY : Jurnal Inovasi Strategi Dan Model Pembelajaran* 2, no. 1 (January 13, 2022): 34–43, https://doi.org/10.51878/strategi.v2i1.861.
[9] Rahmawan and Effendi.

interactive and personalized experience. It also includes the application of technology in various aspects of the education system, from teaching and learning processes to school and university management. The ultimate goal is to improve the quality of education and the efficiency of the learning process, and prepare students for an increasingly technology-integrated society.

Digital transformation in education is transforming the learning environment, improving accessibility, and redefining teaching practices. These changes, accelerated by the COVID-19 pandemic, are focused on integrating technology to improve educational outcomes and drive inclusion. Technology increases student engagement and motivation through an interactive, personalized, and relevant approach. The use of gamification elements, such as points, challenges, and virtual rewards in educational platforms, makes the learning process more enjoyable and immersive. Additionally, personalized learning with the help of technology, such as artificial intelligence (AI), allows the material to be tailored to individual needs and abilities, so that students remain challenged without feeling overwhelmed. Multimedia content, such as interactive video, animation, augmented reality (AR), and virtual reality (VR), also provides an engaging and immersive learning experience, making abstract concepts easier to understand. On the other hand, technology supports collaboration through digital tools such as Google Workspace and Microsoft Teams, allowing students to work together in real-time, share ideas, and complete group assignments more effectively. All of this creates a more dynamic learning environment and motivates students to be actively engaged.

The digital and infrastructure gaps are significant challenges affecting educational outcomes in today's technological age. The digital divide creates inequalities in access to learning tools and resources, so students from low economic backgrounds or living in remote areas often lack the necessary tools to engage in online learning. This can result in a lack of student engagement and motivation, and hinder their academic achievement.[10] In addition, infrastructure gaps, such as unstable internet connections, also limit the ability of schools to effectively implement technology in the teaching and learning process.[11] Without adequate infrastructure, efforts to integrate technology as a driver of educational improvement are hampered, leaving students unable to utilize the full potential of digital learning. As such, these challenges contribute to disparities in educational outcomes, widening the gap between students who have access to technology and those who do not.

Challenge, Infrastructure and accessibility: Many regions, especially developing countries, are experiencing a shortage of resources and infrastructure, hindering effective digital transformation.[12] Digital divide: Gaps in access to technology can exacerbate educational gaps and require targeted interventions.[13] Schools face challenges such as restructuring teaching

[10] "Digital Transformation in Education: Leveraging Technology for Enhanced Learning Experiences," *Futurity Education*, May 30, 2024, 4–17, https://doi.org/10.57125/FED.2024.09.25.01.

[11] Dr. Mohamed Zouhir Azaz, "Navigating Digital Transformation In Higher Education: Lessons From An Online University Case Study," *Educational Administration Theory and Practice*, June 15, 2024, 3194–3203, https://doi.org/10.53555/kuey.v30i6.6014.

[12] Titus Tossy, "Digital Transformation in Education," 2024, 130–50, https://doi.org/10.4018/979-8-3693-3045-6.ch008.

[13] Narat Wattanapanit et al., "An Educational Administration Innovation in the Digital Age and Sustainable Development," 2024, 211–36, https://doi.org/10.4018/979-8-3693-6720-9.ch008.

practices, redefining their roles, and improving digital infrastructure to support personalized learning environments.[14]

Opportunities, distance learning: digital platforms have enabled seamless access to education and ensured equal opportunities for all learners despite initial challenges.[15] Personalized learning: The integration of technology allows for an educational experience tailored to each student's needs.[16] Multimedia integration: Higher education institutions use multimedia systems to create interactive and engaging learning experiences to improve students' learning independence.[17] The integration of digital tools not only enhances academic learning but also develops non-academic skills and contributes to the overall growth of students.[18]

While digital transformation in education offers many benefits, the challenges faced must also be carefully considered, especially the need for high digital literacy among teachers and students. To maximize the potential of this transformation, it is important to address the digital divide and ensure strong infrastructure. These findings suggest that the successful integration of technology in education depends not only on the tools used, but also on the ability of users to utilize technology effectively. Therefore, this research contributes to the development of more inclusive and responsive education policies that focus not only on providing technology but also on improving digital literacy and strengthening infrastructure. With this holistic approach, it is expected to create a more equitable and effective learning environment, and prepare students to face future challenges in an increasingly digitalized world.

Policy Management in the Context of the Education Era 5.0

According to Isna Lapasila et al, management can be understood as "a process consisting of planning, organizing, mobilizing, and controlling processes".[19] Furthermore, according to Al Khadziq & Suwardi, policy means rules that must be implemented indiscriminately by whoever is bound by them.[20] Policy, which includes various terms such as programs, decisions, and rules,

[14] Shaoyun Lin, "Research on the Path of The Digital Transformation of Education in The Era of Artificial Intelligence," *Frontiers in Business, Economics and Management* 15, no. 1 (May 15, 2024): 198–204, https://doi.org/10.54097/2bwt4s51.

[15] Svetlana Zizikova, Petr Nikolaev, and Alexander Levchenko, "Digital Transformation in Education," ed. D.V. Rudoy et al., *E3S Web of Conferences* 381 (April 14, 2023): 02036, https://doi.org/10.1051/e3sconf/202338102036.

[16] Tossy, "Digital Transformation in Education."

[17] Evija Klave and Renate Cane, "DIGITAL TRANSFORMATION OF HIGHER EDUCATION: INTEGRATING MULTIMEDIA SYSTEMS INTO THE STUDY PROCESS," *ENVIRONMENT. TECHNOLOGIES. RESOURCES. Proceedings of the International Scientific and Practical Conference* 2 (June 22, 2024): 168–74, https://doi.org/10.17770/etr2024vol2.8017.

[18] Nenni Triana Sinaga et al., "Digital Dharma : Transformasi Digitalisasi Pendidikan Di SMA Swasta Dharma Karya Beringin Deli Serdang Melalui Peningkatan Pembelajaran Digital Dan Pengembangan Non-Akademik Siswa," *Jurnal Pengabdian Nasional (JPN) Indonesia* 5, no. 2 (May 10, 2024): 418–25, https://doi.org/10.35870/jpni.v5i2.740.

[19] Isna Lapasila et al., "MANAGEMENT FOR THE IMPLEMENTATION OF DEVELOPMENT PLANNING MEETINGS IN PETASIA DISTRICT, DISTRICT NORTH MOROWALI," *SIBATIK JOURNAL: Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, Dan Pendidikan* 3, no. 1 (December 31, 2023): 213–22, https://doi.org/10.54443/SIBATIK.V3I1.1819.

[20] Muhammad Fuadzy Al Khadziq and Suwadi Suwadi, "KEBIJAKAN PENDIDIKAN ISLAM DALAM MENGHADAPI ERA SOCIETY 5.0," *PARAMUROBI: JURNAL PENDIDIKAN AGAMA ISLAM* 6, no. 2 (December 11, 2023): 82–96, https://doi.org/10.32699/paramurobi.v6i2.4876.

in the context of education refers to education policy, which is a rule or strategy designed to regulate and improve the education system.

According to Rusdiana, theoretically, education policies that are designed and formulated to be implemented, are actually not just made. Carefully formulated education policies. In the formulation process, the authority holder in policy-making first carefully considers (rationality, process, results, and existing side effects). According to Hodgkinson's view in Rusdiana, all types of policy formulation are always related to the metapolicy aspect referring to the policies that govern the policy-making process itself because they concern the hidden or real natures, viewpoints, attitudes, and behaviors of the responsible actors. Metapolicy is about understanding and analyzing the deeper layers of policy, including the values and principles that underlie policymakers' decisions.[21]

In this case, the author concludes that education policy management is a process of planning, organizing, actuating, and controlling a politics, program, decision, law, rule, provision, agreement, convention, and strategic plan in achieving educational goals. In a nutshell, we can understand that education policy management is the process of regulating policies to achieve educational goals. By focusing on the term "policies," we encompass a broader range of guidelines and frameworks necessary for effective educational governance.

According to N.J. Harahap Khoiriah et al., the society 5.0 era is the fourth phase of the industrial revolution which is marked by the emergence of advanced technology, including artificial intelligence, big data, and the Internet of Things. All technology has become an important part of human life. Human needs on the Internet as part of life are increasingly important for life. Society 5.0 is the importance of technological developments and the role of society as a response to the Industrial Revolution 4.0. Furthermore, entering the era of society 5.0, there are several competencies that must be possessed by everyone, to prepare themselves for increasingly fierce competition, namely leadership, language skills, IT Literacy, and writing skills.[22]

Society 5.0 is a strategic vision developed in Japan to create a more advanced society through the integration of advanced technologies, such as the Internet of Things (IoT), artificial intelligence (AI), and big data, into everyday life. This concept aims to bring countries outside of Japan towards the Industrial Revolution 4.0, where technology is not only changing industries, but also the way we live and work. In the context of education, Society 5.0 is important because it encourages the development of a more adaptive and technology-based education system, preparing future generations to face the challenges of an increasingly digital and connected world. With many jobs in danger of being lost due to automation, digitalization, and capitalism that aim to improve the effectiveness and efficiency of industries, Society 5.0 is present as a new paradigm that focuses more on the human aspect.[23] Tech Crunch added that Society 5.0 is based on six key pillars, including infrastructure, financial technology, healthcare, logistics, and

[21] H Hasan Basri and H A Rusdiana, "Manajemen Pendidikan & Pelatihan," 2015.
[22] Fadli Emsa Zamani and Diki Suherman, "MODEL TEKNOLOGI INFORMASI DALAM PEMBELAJARAN DAN DAMPAK SOSIAL PADA MASA COVID 19," *Jurnal Dialektika: Jurnal Ilmu Sosial* 20, no. 2 (August 2, 2022): 12–22, https://doi.org/10.54783/dialektika.v20i2.53.
[23] Fadli Emsa Zamani and Diki Suherman.

artificial intelligence (AI). Technology and innovation must be used to support and advance society, not to replace humans. On the other hand, Charles A Beard argued that the industrial revolution placed more emphasis on material and social aspects.

In the world of education, Dr. Mukhtar Hadi, M.Si. (Director of Postgraduate IAIN Metro) (12/02/2024) explained that digital technology has taken the learning process on the sacred walls of the classroom and placed it in the palm of all humans. He stated that although we have just experienced the 4.0 era, we have now entered the 5.0 era, which experts refer to as Society 5.0. Digital transformation in learning is a must. It is no longer just a choice, because we can no longer choose but are "forced" by circumstances to be an integral part of that development. Therefore, this requires teachers and educators to have adequate competence in facing the 5.0 era. In line with the Indonesian People's Law, education is required to have educational resources to prepare changemakers who are resilient, superior, participatory, and competitive. Educational resources are everything used in the implementation of education which includes education personnel, the community, funds, facilities and infrastructure. The trend of Indonesian education in the future is the development of open education with distance learning mode. According to Khoiriah et al to welcome Age Society 5.0, an educator must have academic qualifications that meet the requirements of the applicable law, and educators must begin to train educators who are able to compete with other developed countries in terms of problem-solving with a humanistic approach to solving problems, and teachers must be at the forefront of education to improve the quality of educators.[24] Of course, to carry out quality operations, it is necessary to refer to strategic plans, action plans and annual programs. These measures refer to the national education standards listed in Government Regulation No. 19 of 2005.

1. Integration of technology in the implementation of education reform

The Indonesian government is leveraging technology to overcome geographical and logistical barriers in education by delivering digital tools, online learning platforms, and online communication channels. This integration aims to improve policy accessibility and accelerate implementation in education institutions as well as the public sector. Thus, technology not only provides policymakers with data-driven insights, but also helps adapt policies to the changing needs of society.[25]

The main objective of technology integration is to face complex challenges and achieve revitalization of the national education sector through a more appropriate and integrated strategy. This is in line with Indonesia's "Digital Government" initiative, which focuses on improving the effectiveness and implementation of public education policies. According to the OECD (2019), these applications have a significant impact in improving policy performance in various education sectors.

[24] Siti Umi Khoiriah, Lia Karunia Lam Uli Lubis, and Diva Kayla Nazwa Anas, "Analisis Perkembangan Sistem Manajemen Pendidikan Di Era Society 5.0," *JISPENDIORA Jurnal Ilmu Sosial Pendidikan Dan Humaniora* 2, no. 2 (June 16, 2023): 117–32, https://doi.org/10.56910/jispendiora.v2i2.650.

[25] Salma Rabani et al., "The Role Of Technology In Indonesian Education At Present," *Journal of Computer Science Advancements* 1, no. 2 (August 29, 2023): 85–91, https://doi.org/10.55849/jsca.v1i1.403.

These advances support policy monitoring and implementation by providing easy access to data that was previously difficult to obtain, thereby improving policy accuracy. It also enables innovative and efficient use of policy instruments, with ICT projects quickly implemented to reduce costs. Longitudinal data systems also enable tracking of student progress from education to the world of work, prompting discussions on resource allocation for students from low-income families based on academic performance and household income. Finally, digital channels improve engagement between government and stakeholders.[26]

2. Strategic planning of educational technology in Indonesia has taken into account the aspect of user readiness

Individual use of technology devices is not the main focus of MoEC; instead, the ministry emphasizes technology integration at the teacher and school level. Research shows that giving smart devices to teachers to use in student learning is more effective than giving devices directly to students. The learning outcomes of the group of students who had their own devices showed no improvement, and even tended to decline.[27]

Initiatives for teachers and principals should consider the limitations of personal computers and internet access in remote areas. Therefore, mobile-based devices need to be designed to expand access for a group of teachers. The distribution of computers to schools as part of efforts to meet greater educational needs is also in line with broader education strategies aimed at ensuring equitable access to quality education in the digital age.[28]

Adaptation to Social and Technological Change

In the era of globalization and digitalization, educational units are faced with the challenge of adapting to rapid social and technological changes. This transformation not only affects the way learning takes place, but also has implications for the quality of education and community engagement. In this context, research shows that educational institutions must be responsive to changing social needs as well as integrate technology in the learning process to increase the effectiveness of education.

Rapid social and technological changes have changed the way we learn, teach, and interact with knowledge. Social inclusion in education is also increasing, with educational institutions accepting students from a variety of backgrounds and special educational needs. This shows that education not only functions as a tool for knowledge transfer, but also as an agent of social change that can improve the quality of life and contribute to the economic and social development of the surrounding community.[29]

Along with social changes, technology education has emerged as an important component in educational transformation, technology education plays a role in improving students' analytical and critical thinking skills. By integrating technology in learning, modern education

[26] Rabani et al.
[27] Rabani et al.
[28] Rabani et al.
[29] Richard Desjardins, "Education and Social Transformation," *European Journal of Education* 50, no. 3 (September 3, 2015): 239–44, https://doi.org/10.1111/ejed.12140.

can create a generation that is not only creative, but also has the critical thinking skills necessary to face challenges in society. This research shows that although education in the regions is still less involved in government and community mobilization, there is great potential for education to contribute to reducing poverty by creating intelligent individuals as future assets.[30]

Adaptation to information technology in education is essential. Development of information technology forces all stakeholders in education—teachers, students, and parents—to adapt. The use of digital technology in online learning, such as learning videos and interactive platforms, has proven to be effective in improving the quality of teaching and learning. This study noted that interactive learning media can increase students' enthusiasm for learning and independent learning ability, as well as reduce the gap in information technology mastery.[31]

The digital divide remains a significant challenge in education, exacerbating inequalities among students, especially those from underprivileged backgrounds. Addressing these issues requires educational institutions to implement inclusive policies that ensure equitable access to technology and learning resources. The digital divide creates gaps in access to education, especially affecting students from low socioeconomic backgrounds who often lack personal devices and stable internet connections.[32] Targeted interventions, including digital literacy programs and increased access to technology, are critical to promoting social equity in education.[33]

The continued digital divide underscores the need for continuous efforts to ensure that all students can adapt and benefit from technological advances in education Adaptation to social and technological changes is a must for education units to remain relevant and effective. Through curriculum adjustments, teaching methods, and technology integration, education can improve the quality of teaching and learning and support social development.

Challenges in Implementing Policies

In implementing policies in the 5.0 era in education units, it does not always run smoothly, of course it is necessary to face various challenges. There are a number of theories related to the challenges of implementation, which have been proposed by various experts and researchers. A theory of constructivism that emphasizes it through active interaction between students and their environment. It assumes that students can build their knowledge from their own learning

[30] Fadli Emsa Zamani and Diki Suherman, "MODEL TEKNOLOGI INFORMASI DALAM PEMBELAJARAN DAN DAMPAK SOSIAL PADA MASA COVID 19."

[31] Trismawati Trismawati et al., "Adaptasi Teknologi Informasi Pembelajaran Untuk Meningkatkan Efektifitas Keberhasilan Pembelajaran Daring Di SDN Sumber Wetan 1 Probolinggo," *Jurnal Abdi Panca Marga* 3, no. 1 (May 27, 2022): 46–50, https://doi.org/10.51747/abdipancamarga.v3i1.986.

[32] Mwangi Njeri and Ahmad Taym, "Analysing the Power of Socioeconomic Status on Access to Technology-Enhanced Learning in Secondary Schools," *Research Studies in English Language Teaching and Learning* 2, no. 4 (July 2024): 223–50, https://doi.org/10.62583/rseltl.v2i4.55.

[33] Kelly Baraka, "Digital Divide and Social Inequality," *International Journal of Humanity and Social Sciences* 3, no. 3 (July 12, 2024): 30–45, https://doi.org/10.47941/ijhss.2083.

experiences.[34] In the context of the 5.0 era, technology integration must support active and collaborative learning.[35]

Then, the rapid development of technology needs to adapt from the curriculum and teacher competencies. Using the theory of digital transformation discussed by Bambang Warsita in his journal, it is stated that teachers must adapt by using technology to improve the quality of learning. This includes curriculum development and teacher competency improvement to utilize technology effectively. The role of the learning technology developer profession includes developing fields of study, designing learning systems, producing learning media, and so on.[36]

Then, there is the theory of human capital, according to James Hatch, human capital includes everything about people (labor), their knowledge, intellectuals, and experiences. Investments in education and training improve individual abilities. In the 5.0 era, it is very important to overcome the challenges that arise from technological advancements. Learning is also inseparable from the five scopes of learning technology, namely design, utilization, development, management, and evaluation.[37]

The implementation of curriculum management innovations that are integrated with technology is not without challenges. Romlah, et al. explained in the results of their research that some of the obstacles that must be overcome are such as resistance to change, limited resources, and lack of adequate technological infrastructure. This needs to be overcome because in the future it can affect the improvement of learning and teaching in the 5.0 era.[38]

Furthermore, the results of research from Sakiinah, et al in the journal "Educational Revolution in the Society 5.0 Era: Learning, Challenges, Opportunities, Access, and Technology Skills" explained that the main challenge is to face technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), and Virtual/Augmented Reality in the learning process. More ability from educators is needed to integrate technology in the curriculum as well as effective learning methods.[39]

Similarly, Amalia, et al. explained in the results of their research, that educators in the 5.0 era must have complex competencies and be able to develop them, including competencies in globalization, competencies in technology commercialization, competencies in education, and competencies in future strategies. This is in line with Gunawan's explanation in his journal, that

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[34] Rahman, "Desain Model Dan Materi Pembelajaran Berbasis Teknologi Informasi."

[35] Ade Fricticarani et al., "STRATEGI PENDIDIKAN UNTUK SUKSES DI ERA TEKNOLOGI 5.0," *Jurnal Inovasi Pendidikan Dan Teknologi Informasi (JIPTI)* 4, no. 1 (April 14, 2023): 56–68, https://doi.org/10.52060/pti.v4i1.1173.

[36] Bambang Warsita, "PERAN PENGEMBANG TEKNOLOGI PEMBELAJARAN DI SEKOLAH DALAM MENSUKSESKAN PELAKSANAAN KURIKULUM 2013," *Jurnal Teknodik*, March 8, 2015, 197–206, https://doi.org/10.32550/teknodik.v0i0.124.

[37] Listiyani Siti Romlah et al., "MENGINTEGRASIKAN TEKNOLOGI UNTUK PENINGKATAN PENGAJARAN DAN PEMBELAJARAN ERA 5.0," *At-Tajdid : Jurnal Pendidikan Dan Pemikiran Islam* 8, no. 1 (May 14, 2024): 127–40, https://doi.org/10.24127/ATT.V8I1.3332; Warsita, "PERAN PENGEMBANG TEKNOLOGI PEMBELAJARAN DI SEKOLAH DALAM MENSUKSESKAN PELAKSANAAN KURIKULUM 2013."

[38] Romlah et al., "MENGINTEGRASIKAN TEKNOLOGI UNTUK PENINGKATAN PENGAJARAN DAN PEMBELAJARAN ERA 5.0."

[39] Almirah Nur Sakiinah et al., "Revolusi Pendidikan Di Era Society 5.0; Pembelajaran, Tantangan, Peluang, Akses, Dan Keterampilan Teknologi," *Jurnal Pendidikan Transformatif* 1, no. 2 (November 11, 2022): 18–28, https://doi.org/10.9000/JPT.V1I2.508.

many education personnel still find it difficult to face the 5.0 era, many are not ready to fight with new technology, so they have to add insight into each field.[40]

Sholeh explained from the results of his research, that integrating technology in education faces a number of challenges that need to be overcome. Sholeh divides these challenges into several types, which are common challenges faced. First, the digital divide, namely unequal access and ability to use technology, not every educational institution has adequate technological infrastructure, so this policy is not evenly implemented.[41] Second, teachers and students who have a low level of digital literacy, so maximum efforts are needed to ensure that all parties have the necessary access and skills in integrating technology. Third, content and quality management, in the face of increasingly sophisticated digital resources, educational institutions need to sort and evaluate quality and accurate content.[42]

In facing various challenges, collaboration with every stakeholder is indispensable in the implementation of policies in the 5.0 era. They must provide moral support and support the programs held by the school to create a conducive educational environment. Thus, after looking at various theories and research results presented that are in line, the implementation of management policies in the 5.0 era in educational units requires effective technology integration, complex educator competencies, infrastructure readiness, and dynamic curriculum development, as well as collaboration with each stakeholder.

CONCLUSION

The integration of technology in education in the 5.0 era requires an overarching strategy that includes policy management, teacher competencies and ready infrastructure. Education policy must be proactive and collaborative to ensure equitable access to technology and resources. While technology brings great benefits, the digital divide must be addressed with targeted interventions. Educational institutions must develop dynamic curricula that support active learning and critique. The success of this relies on collaboration between educators, policymakers and communities to create responsive learning environments. Follow-up steps include proactive policy development, improved teacher competencies, infrastructure development, anti-digital divide interventions, and multi-stakeholder collaboration.

REFFERENCES

Baraka, Kelly. "Digital Divide and Social Inequality." *International Journal of Humanity and Social Sciences* 3, no. 3 (July 12, 2024): 30–45. https://doi.org/10.47941/ijhss.2083.

Basri, H Hasan, and H A Rusdiana. "Manajemen Pendidikan & Pelatihan," 2015.

Chaeruman, Uwes Anis. "MERANCANG MODEL BLENDED LEARNING DESIGNING

[40] Naufal Rizaldi Gunawan and Anik Nur Handayani, "Peluang Dan Tantangan Pendidikan Di Era Society 5.0," *Jurnal Inovasi Teknologi Dan Edukasi Teknik* 3, no. 3 (March 30, 2023): 134–38, https://doi.org/10.17977/um068v3i32023p134-138.

[41] M Sholeh et al., "Human Resource Management in Improving the Quality of Teachers in Indonesian Islamic Primary Education Institutions. Al-Bidayah: Jurnal Pendidikan Dasar Islam, 13 (1), 21–36," 2021.

[42] Uwes Anis Chaeruman, "MERANCANG MODEL BLENDED LEARNING DESIGNING BLENDED LEARNING MODEL," *Jurnal Teknodik*, April 8, 2019, 053–063, https://doi.org/10.32550/teknodik.v17i4.577.

BLENDED LEARNING MODEL." *Jurnal Teknodik*, April 8, 2019, 053–063. https://doi.org/10.32550/teknodik.v17i4.577.

Desjardins, Richard. "Education and Social Transformation." *European Journal of Education* 50, no. 3 (September 3, 2015): 239–44. https://doi.org/10.1111/ejed.12140.

"Digital Transformation in Education: Leveraging Technology for Enhanced Learning Experiences." *Futurity Education*, May 30, 2024, 4–17. https://doi.org/10.57125/FED.2024.09.25.01.

Fadli Emsa Zamani, and Diki Suherman. "MODEL TEKNOLOGI INFORMASI DALAM PEMBELAJARAN DAN DAMPAK SOSIAL PADA MASA COVID 19." *Jurnal Dialektika: Jurnal Ilmu Sosial* 20, no. 2 (August 2, 2022): 12–22. https://doi.org/10.54783/dialektika.v20i2.53.

Falah, Anta Khoirul Miftahul, and Moch. Rizal Fuadiy. "Strategi Kepala Madrasah Dalam Meningkatkan Kualitas Pendidikan: Studi Kasus Pada MI Muhammadiyah Dukuh, Watulimo, Trenggalek." *DIMAR: Jurnal Pendidikan Islam* 5, no. 1 (December 25, 2023): 119–27. https://doi.org/10.58577/dimar.v5i1.172.

Faruq, M. Shoffa Saifillah Al, M. Asep Fathur Rozi, and Ahmad Sunoko. "Implementation of the Juran Trilogy in Improving the Quality of Islamic Higher Education." *Al-Hayat: Journal of Islamic Education* 8, no. 1 (January 21, 2024): 169. https://doi.org/10.35723/ajie.v8i1.420.

Fricticarani, Ade, Amalia Hayati, Ramdani R, Irva Hoirunisa, and Gina Mutiara Rosdalina. "STRATEGI PENDIDIKAN UNTUK SUKSES DI ERA TEKNOLOGI 5.0." *Jurnal Inovasi Pendidikan Dan Teknologi Informasi (JIPTI)* 4, no. 1 (April 14, 2023): 56–68. https://doi.org/10.52060/pti.v4i1.1173.

Gunawan, Naufal Rizaldi, and Anik Nur Handayani. "Peluang Dan Tantangan Pendidikan Di Era Society 5.0." *Jurnal Inovasi Teknologi Dan Edukasi Teknik* 3, no. 3 (March 30, 2023): 134–38. https://doi.org/10.17977/um068v3i32023p134-138.

Haleem, Abid, Mohd Javaid, Mohd Asim Qadri, and Rajiv Suman. "Understanding the Role of Digital Technologies in Education: A Review." *Sustainable Operations and Computers* 3 (2022): 275–85. https://doi.org/10.1016/j.susoc.2022.05.004.

Khadziq, Muhammad Fuadzy Al, and Suwadi Suwadi. "KEBIJAKAN PENDIDIKAN ISLAM DALAM MENGHADAPI ERA SOCIETY 5.0." *PARAMUROBI: JURNAL PENDIDIKAN AGAMA ISLAM* 6, no. 2 (December 11, 2023): 82–96. https://doi.org/10.32699/paramurobi.v6i2.4876.

Klave, Evija, and Renate Cane. "DIGITAL TRANSFORMATION OF HIGHER EDUCATION: INTEGRATING MULTIMEDIA SYSTEMS INTO THE STUDY PROCESS." *ENVIRONMENT. TECHNOLOGIES. RESOURCES. Proceedings of the International Scientific and Practical Conference* 2 (June 22, 2024): 168–74. https://doi.org/10.17770/etr2024vol2.8017.

Lapasila, Isna, Nasir Mangngasing, Nuraisyah Nuraisyah, and Dandan Haryono. "MANAGEMENT FOR THE IMPLEMENTATION OF DEVELOPMENT PLANNING MEETINGS IN PETASIA DISTRICT, DISTRICT NORTH MOROWALI." *SIBATIK*

JOURNAL: Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, Dan Pendidikan 3, no. 1 (December 31, 2023): 213–22. https://doi.org/10.54443/SIBATIK.V3I1.1819.

Lin, Shaoyun. "Research on the Path of The Digital Transformation of Education in The Era of Artificial Intelligence." *Frontiers in Business, Economics and Management* 15, no. 1 (May 15, 2024): 198–204. https://doi.org/10.54097/2bwt4s51.

Njeri, Mwangi, and Ahmad Taym. "Analysing the Power of Socioeconomic Status on Access to Technology-Enhanced Learning in Secondary Schools." *Research Studies in English Language Teaching and Learning* 2, no. 4 (July 2024): 223–50. https://doi.org/10.62583/rseltl.v2i4.55.

Nur Sakiinah, Almirah, Alfi Fadliya Putri Mahya, Gunawan Santoso, and Universitas Muhammadiyah Jakarta. "Revolusi Pendidikan Di Era Society 5.0; Pembelajaran, Tantangan, Peluang, Akses, Dan Keterampilan Teknologi." *Jurnal Pendidikan Transformatif* 1, no. 2 (November 11, 2022): 18–28. https://doi.org/10.9000/JPT.V1I2.508.

Rabani, Salma, Annisaul Khairat, Xie Guilin, and Deng Jiao. "The Role Of Technology In Indonesian Education At Present." *Journal of Computer Science Advancements* 1, no. 2 (August 29, 2023): 85–91. https://doi.org/10.55849/jsca.v1i1.403.

Rahman, Ali. "Desain Model Dan Materi Pembelajaran Berbasis Teknologi Informasi." *AL-ISHLAH: Jurnal Pendidikan Islam* 16, no. 2 (December 12, 2018): 128–43. https://doi.org/10.35905/alishlah.v16i2.743.

Rahmawan, Aditya Zulmi, and Zaenuriyah Effendi. "Implementasi Society 5.0 Dalam Kebijakan Dan Strategi Pendidikan Pada Pandemi Covid-19." *STRATEGY : Jurnal Inovasi Strategi Dan Model Pembelajaran* 2, no. 1 (January 13, 2022): 34–43. https://doi.org/10.51878/strategi.v2i1.861.

Romlah, Listiyani Siti, Iskandar Iskandar, Latiful Wahid, Nuryadin Ali, and Bujang Rahman. "MENGINTEGRASIKAN TEKNOLOGI UNTUK PENINGKATAN PENGAJARAN DAN PEMBELAJARAN ERA 5.0." *At-Tajdid : Jurnal Pendidikan Dan Pemikiran Islam* 8, no. 1 (May 14, 2024): 127–40. https://doi.org/10.24127/ATT.V8I1.3332.

Samala, Agariadne Dwinggo, Usmeldi, Taali, Yose Indarta, Apdoludin, Muhammad Hakiki, and Kelvin Leong. "Top 10 Most-Cited Articles Concerning Blended Learning for Introductory Algorithms and Programming: A Bibliometric Analysis and Overview." *International Journal of Interactive Mobile Technologies (IJIM)* 17, no. 05 (March 7, 2023): 57–70. https://doi.org/10.3991/ijim.v17i05.36503.

Sari, Indri Via Yunita, Estiti Rifngatul Kamila, and Nur Kholis. "Transformasi Model Pengembangan Kurikulum Pendidikan Islam Menuju Era Society 5,0." *Journal of Educational Research and Practice* 1, no. 1 (November 15, 2023): 28–43. https://doi.org/10.70376/jerp.v1i1.26.

Sari, Lia, and Siti Shalihah. "The Effectiveness of Learning Cycle 5E Model toward Students' Science Process Skills in Natural Science Subject." *Al-Adzka: Jurnal Ilmiah Pendidikan Guru Madrasah Ibtidaiyah* 13, no. 1 (July 7, 2023): 10–18. https://doi.org/10.18592/aladzkapgmi.v13i1.9148.

Sholeh, M, R Jannah, K Khairunnisa, N Kholis, and G Tosson. "Human Resource Management in Improving the Quality of Teachers in Indonesian Islamic Primary Education Institutions.

Al-Bidayah: Jurnal Pendidikan Dasar Islam, 13 (1), 21–36," 2021.

Sinaga, Nenni Triana, Cleydia Lisyeni Verentia, Brian Arswendy Sitanggang, Immanuel Natanael Siahaan, and Anjeli Artha Manurung. "Digital Dharma : Transformasi Digitalisasi Pendidikan Di SMA Swasta Dharma Karya Beringin Deli Serdang Melalui Peningkatan Pembelajaran Digital Dan Pengembangan Non-Akademik Siswa." *Jurnal Pengabdian Nasional (JPN) Indonesia* 5, no. 2 (May 10, 2024): 418–25. https://doi.org/10.35870/jpni.v5i2.740.

Siti Umi Khoiriah, Lia Karunia Lam Uli Lubis, and Diva Kayla Nazwa Anas. "Analisis Perkembangan Sistem Manajemen Pendidikan Di Era Society 5.0." *JISPENDIORA Jurnal Ilmu Sosial Pendidikan Dan Humaniora* 2, no. 2 (June 16, 2023): 117–32. https://doi.org/10.56910/jispendiora.v2i2.650.

Tossy, Titus. "Digital Transformation in Education," 130–50, 2024. https://doi.org/10.4018/979-8-3693-3045-6.ch008.

Trismawati, Trismawati, Agustina Puji Astuti, M. Saiful Bahri, Abdul Basit, Wahyu Indrati, Fellicia Roshita Armanda Putri, Riza Novitasari, Wanda Zahratul Mustafafi, and Meilani Safira. "Adaptasi Teknologi Informasi Pembelajaran Untuk Meningkatkan Efektifitas Keberhasilan Pembelajaran Daring Di SDN Sumber Wetan 1 Probolinggo." *Jurnal Abdi Panca Marga* 3, no. 1 (May 27, 2022): 46–50. https://doi.org/10.51747/abdipancamarga.v3i1.986.

Warsita, Bambang. "PERAN PENGEMBANG TEKNOLOGI PEMBELAJARAN DI SEKOLAH DALAM MENSUKSESKAN PELAKSANAAN KURIKULUM 2013." *Jurnal Teknodik*, March 8, 2015, 197–206. https://doi.org/10.32550/teknodik.v0i0.124.

Wattanapanit, Narat, Krisda Tanchaisak, Busara Niyomves, and Sanya Kenaphoom. "An Educational Administration Innovation in the Digital Age and Sustainable Development," 211–36, 2024. https://doi.org/10.4018/979-8-3693-6720-9.ch008.

Zizikova, Svetlana, Petr Nikolaev, and Alexander Levchenko. "Digital Transformation in Education." Edited by D.V. Rudoy, A.V. Olshevskaya, E.N. Ponomareva, and M.Yu. Odabashyan. *E3S Web of Conferences* 381 (April 14, 2023): 02036. https://doi.org/10.1051/e3sconf/202338102036.

Zouhir Azaz, Dr. Mohamed. "Navigating Digital Transformation In Higher Education: Lessons From An Online University Case Study." *Educational Administration Theory and Practice*, June 15, 2024, 3194–3203. https://doi.org/10.53555/kuey.v30i6.6014.