

EDUCATIONAL TRANSFORMATION IN THE ERA OF SOCIETY 5.0: CHALLENGES AND OPPORTUNITIES FOR EDUCATORS

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Abstract

The Society 5.0 era brings a new paradigm to various aspects of life, including the world of education. This concept emphasizes the integration between technological sophistication and human needs, which encourages the education system to adapt dynamically. Educational transformation is a necessity in order to be able to produce human resources who are not only digitally competent, but also have empathy, creativity, and critical thinking skills. For educators, this era presents challenges such as the digital literacy gap, limited infrastructure, and the need for changes in learning approaches. However, on the other hand, Society 5.0 also opens up broad opportunities, such as the use of artificial intelligence technology, data-based learning, and access to global learning resources. This article comprehensively discusses the challenges and opportunities faced by educators in responding to educational transformation in the Society 5.0 era, while reflecting on strategies that can be carried out to improve the quality of adaptive and humanistic learning.

Keywords: Society 5.0, educational transformation, educator challenges, technological opportunities, learning innovation

INTRODUCTION

The development of information and communication technology has entered an increasingly complex and dynamic phase, marking the transition of global society from the industrial era 4.0 to the Society 5.0 era. The term Society 5.0 was first introduced by the Japanese government as a vision of a future society that integrates technological sophistication such as artificial intelligence, the Internet of Things (IoT), big data, and robotics into human life

as a whole (A Literature Review of the Challenges and Opportunities of the Transition from Industry 4.0 to Society 5.0, n.d.). Unlike the industrial era 4.0 which focused on automation and efficiency, Society 5.0 emphasizes the balance between technological progress and the fulfillment of human social, emotional, and spiritual needs. In this context, education becomes a strategic sector that plays an important role in preparing superior human resources who are able to answer the challenges of the times and optimally utilize existing opportunities. The transformation of education in the Society 5.0 era is not just a change in the form or means of learning, but a fundamental paradigm shift. Education can no longer be separated from technological developments. The learning process does not only occur in the physical classroom, but can also take place flexibly, across time and place, with the support of various digital platforms. However, this change requires more than just technical readiness; it demands philosophical, pedagogical, and psychological readiness, both from students and educators. Teachers and lecturers are no longer sufficient in their role as conveyors of information, but must transform into learning facilitators, pedagogical innovators, and learning partners who are able to guide students in developing critical thinking skills, creativity, collaboration, and communication (Gürdür Broo et al., 2022). The transformation of education in the Society 5.0 era cannot be separated from the context of globalization which accelerates the flow of information and interaction between humans across geographical boundaries. In the midst of this global flow, students no longer live in a social space limited to local communities, but become part of world citizens who are required to have global competence (Akour & Alenezi, 2022). Therefore, education must be designed to develop 21st-century skills holistically, including systemic thinking skills, multilingualism, adaptability to change, and strong digital literacy. Educators are required to be able to bridge learning with the needs of a rapidly changing era, without losing the roots of the nation's values and cultural identity. Furthermore, Society 5.0 introduces a vision of a society that is not only oriented towards efficiency and production, but also holistic individual well-being. In this context, the role of educators as character builders becomes increasingly significant. Educators are not only conveyors of material, but also become moral role models, mentors, and catalysts for social change. Thus, the ongoing educational transformation must be balanced between mastery of technology and strengthening the human dimension. This is where the fundamental challenge arises: how to create learning that is

personal, empathetic, and student-centered, in a system that is increasingly digitalized and driven by algorithms (Tyagi et al., 2023).

Amidst the great opportunities offered by Society 5.0, the world of education also faces complex challenges. Not all educational institutions have equal access to adequate technological infrastructure. The digital divide between urban and rural areas, between leading educational institutions and marginal schools, is a serious obstacle to realizing inclusive transformation (Alenezi, 2021). On the other hand, most educators do not yet have adequate digital competence, both in terms of technical use of devices and in terms of pedagogical skills in integrating technology into the learning process in a meaningful way. Lack of training, resistance to change, and high administrative burdens are often the main barriers to adopting educational innovations. Furthermore, the transformation of education in the Society 5.0 era also demands changes in the curriculum and learning evaluation approach. The traditional curriculum that emphasizes memorization and reproduction of information is no longer relevant. Today's curriculum must be directed at forming new characters, competencies, and literacies, including digital literacy, data literacy, and human literacy. Evaluation must also shift from merely measuring cognitive learning outcomes to assessing processes, projects, and real performance that reflect mastery of 21st-century competencies. All of this requires courage, creativity, and cross-stakeholder collaboration, including government, educational institutions, businesses, and civil society.

Although the challenges are quite large, the Society 5.0 era also opens up extraordinary opportunities for educators to expand their role and influence. Technology allows educators to reach more students, provide personalized learning, and use data to design more effective interventions. Online learning platforms, virtual reality-based simulations, and AI-based digital assistants can be utilized to create engaging, adaptive, and contextual learning experiences. In addition, educators also have the opportunity to continue learning and developing professionally through various digital communities, online training, and global collaboration across disciplines (Carayannis et al., 2022).

It is important to realize that educational transformation within the Society 5.0 framework is not only a technical task, but also a humanitarian mission. Education in this era must continue to maintain noble values, such as empathy, tolerance, honesty, and social responsibility. Technology is only a tool; humans remain the main subject. Therefore, educators have a moral

responsibility to ensure that the use of technology does not distance humans from their human values, but instead strengthens them. Education must be able to instill critical and ethical awareness in using technology, so that future generations are not only intellectually intelligent, but also wise in acting. In the context of Indonesia, the implementation of educational transformation in the Society 5.0 era requires a holistic and contextual approach. With high geographic, social, and cultural diversity, educational transformation strategies cannot be carried out uniformly. The government, through the Merdeka Belajar policy, has tried to open up wider innovation space, providing autonomy to educational units and educators to design learning that is relevant to local needs. However, this policy requires real support in the form of training, mentoring, and strengthening a collaborative educational ecosystem. Educators are expected not only to be curriculum implementers, but also agents of change who are active in leading transformation in their respective environments (Goulart et al., 2022).

In addition, the role of higher education institutions is also crucial in preparing prospective educators who are adaptive and innovative. The teacher education curriculum must be able to equip students with teaching skills in a digitalized environment, as well as reflective abilities to continue learning and adapting. Collaboration between the academic world, education practitioners, and the technology industry is also key to creating an educational ecosystem that is responsive to changes in the times. In-depth research on the effectiveness of technology in learning, innovative pedagogical strategies, and character development in the digital era needs to be encouraged to become the basis for policy making and the development of educational practices. Ultimately, educational transformation in the Society 5.0 era is inevitable. The world has changed, and education must follow the flow of change with an open, critical, and innovative attitude. Educators are at the forefront of this change process. They are not only tasked with teaching, but also with inspiring, guiding, and shaping a generation that is ready to live in a complex and interconnected world. Recognizing the challenges and opportunities that exist is an important first step in formulating a strategy for sustainable and humanistic educational transformation. Through shared commitment and cross-sector collaboration, education in the Society 5.0 era can become the main driving force for the realization of a fair, intelligent, and competitive future society.

RESEARCH METHOD

The research method used in this study is the literature review method, which aims to gain a deep understanding of the transformation of education in the Society 5.0 era, especially in identifying the challenges and opportunities faced by educators. The literature review was conducted by examining various scientific sources, such as national and international journals, reference books, policy reports, and other academic publications relevant to the topic. The literature search focused on publications from the last five to ten years to ensure that the data analyzed reflects contemporary conditions and current developments in the world of education.

Data collection was carried out systematically using keywords such as "Society 5.0", "educational transformation", "educator challenges", and "digital education opportunities" in academic search engines such as Google Scholar, ScienceDirect, and national journal databases. Each source obtained was then selected based on its relevance, credibility, and contribution to understanding the research theme. Data analysis was carried out using a descriptive-qualitative approach, namely by identifying the main themes, compiling a synthesis of various findings, and comparing different views or study results to obtain a complete picture of the impact of Society 5.0 on the world of education.

Through this literature review approach, the research is expected to provide a conceptual contribution in revealing the various dynamics that occur in the world of education in response to the demands of the Society 5.0 era. By relying on secondary data that has been validated by the academic community, this study seeks to present a critical review of the changes that have occurred, while also offering strategic insights for educators in facing the increasingly complex digital era based on artificial intelligence. This approach also allows the identification of research gaps that can be the basis for further research in the future.

RESULT AND DISCUSSION

Basic Concepts of Society 5.0 and Its Relevance to the World of Education

Society 5.0 is a concept of a future society first introduced by the Japanese government as part of its national strategy to address the challenges of the industrial revolution 4.0 (Carayannis & Morawska-Jancelewicz, 2022). This concept reflects a major shift in the way humans live, work, and interact with technology. If in the Society 1.0 era humans still lived as hunter-gatherers and depended on nature, then developed into the era of

agriculture (2.0), industry (3.0), and information (4.0), then Society 5.0 is present as a form of integration between the physical world and the digital world by making humans the center of all technological innovation. In this context, technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), big data, and robotics are not only used for industrial efficiency, but also to improve the quality of human life as a whole, including in the education sector. The transformation towards Society 5.0 has major implications for the world of education. In the midst of rapid technological developments, education can no longer run with a conventional approach that only emphasizes the transfer of knowledge from teachers to students. In Society 5.0, education must be able to produce individuals who are not only technologically proficient, but also able to think critically, creatively, and have high social empathy. Therefore, the education system must adapt to the needs of a more complex, dynamic, and data-based future society. Education is not only seen as a process of gaining knowledge, but as a strategic tool in forming humans who are able to face and utilize technological changes to create solutions to various social problems.

The relevance of Society 5.0 to education is reflected in the approach that places students at the center of learning and technology as a tool to improve the quality of learning. Technology is used not to replace the role of teachers, but to support and enrich the teaching and learning process. For example, with the help of artificial intelligence, teachers can obtain a more in-depth analysis of individual student learning developments, so that they can provide more appropriate and personalized interventions. In addition, virtual reality and augmented reality technologies enable more interactive and contextual learning, which can increase students' motivation and understanding of the subject matter (Potočan et al., 2020). Thus, education in the Society 5.0 era is no longer just a teaching process, but a comprehensive and enjoyable learning experience.

However, the implementation of the Society 5.0 concept in education is not without challenges. One of the biggest challenges is the gap in access to technology between urban and rural areas. This gap can lead to increasingly sharp differences in the quality of education. In addition, the readiness of educators is also a key factor in the success of the transformation of education towards Society 5.0. Many teachers do not yet have adequate digital competencies to optimally integrate technology into learning. Therefore, training and professional development for educators is very important. Teacher education must be directed not only at mastering

technology, but also at understanding the philosophy of 21st-century learning that emphasizes collaboration, communication, critical thinking, and creativity.

In addition to internal challenges, there are also external challenges such as rapid changes in the world of work and demands for global competence. In the era of Society 5.0, many conventional jobs are being replaced by automation and artificial intelligence. This requires the world of education to prepare students with new skills that are relevant to the future (Mourtzis et al., 2022). Education must focus on the development of soft skills such as adaptability, systemic thinking, and digital and data literacy. Schools and higher education institutions need to reorient their curriculum to be more responsive to changing needs of society and the world of work. The curriculum must be designed flexibly, allowing students to explore their interests and potential optimally. The concept of Society 5.0 also emphasizes the importance of character education. Amidst the dominance of technology, human values must be maintained and strengthened. Education must be able to instill ethical values, social responsibility, and awareness of the impact of technology on human life and the environment. The balance between mastery of technology and character building is key to producing a generation that is not only intellectually intelligent, but also wise in using technology for the common good (Sá et al., 2022). In this context, education plays an important role as a guardian of human values in the digital era. The implementation of Society 5.0 in education also opens up great opportunities for cross-sector collaboration. The government, educational institutions, the private sector, and the community need to work together to create an educational ecosystem that supports lifelong learning. Learning is no longer limited to the classroom, but can occur anywhere and anytime through digital platforms. This expands access to education and allows each individual to continue learning according to their needs. The government can play a role in providing supporting technological infrastructure and regulations, while the private sector can contribute through innovation and investment in edtech (Sá & Serpa, 2022).

The Role and Competence of Modern Educators

Rapid changes in the era have brought about major transformations in various aspects of life, including in the world of education (Smolikevych, 2019). In the modern era marked by advances in digital technology, globalization, and ever-growing socio-cultural complexity, the role and competence of an

educator are no longer limited to delivering material in the classroom. Today's educators are required to be able to adapt to changes that occur dynamically, become learning facilitators who empower students, and be able to integrate various 21st-century skills into the learning process. Modern educators must be agents of transformation who encourage students to think critically, creatively, collaboratively, and communicatively. It is not enough to just have knowledge, a modern educator must also have adequate pedagogical, technological, social, and emotional skills to answer the challenges of the times. In a global context, education is no longer seen only as a process of transferring knowledge, but more than that, as a means of character formation and developing the potential of students holistically. Modern educators have a moral and professional responsibility to build an inclusive, safe, and supportive learning environment. The environment must be able to accommodate the diversity of backgrounds, abilities, and learning styles of students. This requires educators to have high multicultural competence and empathy, as well as skills in building effective communication. Educators should not impose a uniform approach on all students, but must be able to adjust learning strategies according to individual needs. This approach requires a deep understanding of child and adolescent developmental psychology, as well as the ability to conduct appropriate formative assessments (Alimjonovna, 2024). Modern educators are also required to be technology literate. The use of information and communication technology in learning is no longer just an option, but a necessity. Digital transformation in the world of education requires teachers to master various digital platforms, understand the principles of online learning, and be able to design interesting and interactive media and learning resources (Chelnokova & Александровна, 2020). An educator must be able to utilize technology as a tool to strengthen learning, not replace it. In distance learning or blended learning, the role of educators becomes increasingly complex because they must maintain student engagement, ensure understanding of the material, and continue to build meaningful interpersonal relationships. These challenges can only be overcome with good technological competence and high pedagogical flexibility. In addition to the technological aspect, information literacy competence is also very important. In an era of flooding with information like today, students are very easily exposed to various sources that are not necessarily accurate and credible. Therefore, educators must act as guides in the process of searching, evaluating, and using information ethically. Teachers must be able to equip students with digital literacy, media literacy, and data

literacy skills so that they are not only consumers of information, but also responsible producers of information. This is part of educators' efforts to form students who are digitally competent and ready to face global challenges.

In terms of professionalism, modern educators are required to continue learning and improving their competence. The world of education is a world that is always developing, along with the emergence of new theories, innovative learning approaches, and educational policies that are constantly changing. Therefore, educators must have the spirit of lifelong learners. They need to be involved in various professional development activities such as training, seminars, conferences, and learning communities. Educators who continue to update their knowledge and skills will be better prepared to face change, and are able to make a greater contribution to improving the quality of education (TEACHERS AND SOCIAL LEARNING AS A FACTOR OF MODERN EDUCATIONAL COMPETENCIES - ProQuest, n.d.). No less important, modern educators must have high social and emotional competence. Mastery of content and pedagogy alone is not enough if it is not accompanied by the ability to build positive relationships with students, colleagues, and the community. Skills in understanding one's own and others' emotions, managing conflict, and showing concern and empathy are important elements in creating a conducive learning climate. Educators who have good emotional intelligence will be better able to foster supportive relationships and respect differences, as well as become role models for students in forming noble characters.

In this modern era, educators are also expected to have global citizenship insight. This means that they must understand global issues such as climate change, social justice, human rights, and cultural diversity, and be able to integrate these values into the learning process. Students need to be prepared to become responsible world citizens, and the role of educators in instilling global awareness is very vital. Through a contextual and reflective learning approach, teachers can help students develop strong social sensitivity and global ethics.

The change in the educational paradigm from teacher-centered to student-centered also requires educators to have high facilitation competencies. In this approach, educators are no longer the center of all learning activities, but rather as facilitators who help students in the process of exploring and constructing knowledge. Teachers must be able to design active, meaningful, and challenging learning experiences, where students are given space to ask questions, experiment, and discover the meaning of the

learning they are undergoing. This requires a shift in perspective and teaching practices that is not easy, but is very important in creating learning that is relevant to the needs of the 21st century.

The role of educators as models and role models is also increasingly important in this modern era. Amidst the rapid flow of information and the influence of social media, students need figures who can provide inspiration and direction. Educators must be able to demonstrate integrity, responsibility, hard work, and respect for diversity. These values are not enough to be taught verbally, but must be exemplified through real actions. The exemplary behavior of educators will be an important foundation in forming the character of students with integrity and morals (Sapaev et al., 2022).

Overall, the role and competence of modern educators require integration between various dimensions: knowledge, skills, attitudes, and awareness of developing social and technological dynamics. The complexity of educators' tasks in this modern era cannot be underestimated. They are not only required to be experts in the subjects they teach, but also to be character builders, learning facilitators, drivers of change, and guardians of human values. For this reason, investment in the development of educator professionalism must be a top priority in the education system. Only with competent, reflective, and adaptive educators can education function as a driver of civilization progress and shape superior future generations. With all the challenges and opportunities that exist, the role of educators in this modern era is becoming increasingly strategic. Education can never be completely replaced by technology, because the essence of education lies in human relationships, in dialogue that builds meaning, and in values that are transmitted through interaction. In this context, a modern educator is not only a profession, but also a calling. A calling to be a light in the midst of darkness, a guide in the midst of confusion, and a driver of hope in the midst of inevitable change.

Real Challenges and Opportunities Faced by Educators in the Era of Society

5.0

The Society 5.0 era is here as a response to the very rapid development of technology, especially in terms of integration between physical and digital spaces. In this era, technology is not only a tool, but an integral part of human life. Society is required to not only be able to use technology, but also collaborate with it to create solutions to various social problems. This change has major consequences for the world of education, especially for educators

who must now be able to transform in order to remain relevant and effective in the learning process. Educators are no longer sufficient to rely on conventional methods, but need to enrich themselves with an understanding of technology and an adaptive approach to the needs of students in the digital era (Legi et al., 2023). The challenges faced by educators in the Society 5.0 era are very complex. One of the biggest challenges is the digital literacy gap between educators and students (Supa'at & Ihsan, 2023). The younger generation who grew up in a digital environment often adapts to the latest technology faster than educators from the previous generation. This creates inequality in the teaching and learning process, where students feel less challenged and educators feel overwhelmed. In addition, many educators do not yet have adequate access to cutting-edge technology training. The lack of systematic and ongoing training has led to a lag in mastering digital learning tools that should be able to improve teaching effectiveness.

Another challenge comes from changes in student characteristics. In the Society 5.0 era, students do not only rely on information from teachers, but also from various digital sources such as videos, e-learning platforms, social media, and artificial intelligence. They are accustomed to fast, visual, and interactive information. This requires educators to not only be material providers, but also learning facilitators who are able to direct and validate information obtained by students independently. On the other hand, increasing dependence on technology also raises new problems, such as decreased critical thinking skills, reduced direct social interaction, and increased distractions due to gadgets. Educators are required to be able to balance the use of technology with the formation of character and social skills of students.

No less important are the challenges in education policies and systems themselves. Many education systems are still conservative and have not accommodated rapid changes in the digital world. Curriculum is often outdated, evaluation methods have not touched on 21st century skills, and educational bureaucracy still hampers innovation. Educators who want to make breakthroughs are often constrained by rigid rules or lack of support from institutions. In addition, the high administrative burden also reduces the time and energy of educators to develop creativity and innovation in learning. All of these are serious obstacles that require attention and comprehensive reform so that the role of educators can be optimal in facing the Society 5.0 era. However, behind these challenges, the Society 5.0 era also presents great opportunities for educators to make quality leaps in education. Technology

enables personalization of learning that was previously difficult to realize. With the help of big data and artificial intelligence, educators can identify the needs and potential of each student more accurately. This allows for a more individual and effective learning approach, which takes into account the differences in learning styles and speed of understanding of each child. Educators can also access various learning resources from around the world, enriching learning materials and methods with relevant and interesting innovative content.

Another opportunity is the emergence of online learning communities that enable collaboration between educators across regions, even across countries. Through digital platforms, educators can share experiences, teaching materials, teaching strategies, and best practices that can enrich their professional abilities (Nurhayati, 2024). This creates an open and collaborative learning ecosystem, where knowledge is no longer hierarchical, but dynamic and participatory. In addition, digital platforms also enable lifelong learning, both for students and educators. Educators can continue to update their competencies through online courses, webinars, and online training without being bound by space and time constraints.

The transformation of the role of educators is another strategic opportunity. In the era of Society 5.0, educators are not only teachers, but also mentors, facilitators, and even innovators in the education process. This role opens up space for educators to be creative in designing more meaningful, contextual, and enjoyable learning experiences. Educators have the opportunity to become agents of change who shape superior generations with critical, creative, collaborative, and communicative thinking skills. Moreover, educators can also play a role as character builders who are able to instill human values amidst the dominance of technology (Rusman et al., 2023). Thus, the role of educators becomes very strategic in maintaining the balance between technological progress and human values.

The integration of technology in education also opens up opportunities for greater inclusivity. Learners who previously experienced geographical, economic, or physical barriers now have a greater opportunity to access quality education through technology. Educators play an important role in bridging this access, ensuring that every child has an equal opportunity to learn and develop. This is in line with the spirit of Society 5.0 which places humans at the center of all technological innovation (Pratama et al., 2022). Therefore, educators need to build awareness and commitment to using technology as a tool of empowerment, not just as a complement.

Overall, the Society 5.0 era requires educators to not only be ready to adapt, but also to dare to innovate. The challenges that arise should not be used as an excuse to stagnate, but rather as a trigger to continue to develop. On the other hand, the opportunities that arise must be utilized wisely and strategically so that holistic educational goals can be achieved. In facing this era, the key to success lies in the willingness of educators to continue learning, be open to change, and synergize with technology and fellow educators. Thus, education will be able to produce a generation that is not only intellectually intelligent, but also competitive, has character, and cares about others and the environment amidst the flow of global digitalization.

CONCLUSION

The transformation of education in the Society 5.0 era marks a fundamental change in the way learning is organized, by placing technology as a strategic partner in the teaching process. In this context, educators are not only required to master digital technology, but also to be able to use it creatively and innovatively to form more adaptive and student-centered learning. The integration of technology and human values is a characteristic of this era, which demands an educational approach that is not only cognitive but also emotional and social. However, this transformation also brings complex challenges. Educators are faced with a digital literacy gap, limited infrastructure, and administrative burdens that often interfere with the main focus in educating.

Changes in the curriculum, demands for competency-based learning, and adjustments to the characteristics of digital generation students also add to the complexity of the role of educators. In facing these challenges, continuous competency development and progressive institutional and policy support are very crucial. Behind these challenges, there are also various strategic opportunities that can be utilized by educators to optimize their role. The Society 5.0 era allows educators to become facilitators of more flexible, collaborative, and contextual learning, by utilizing technologies such as artificial intelligence, big data, and the internet of things. The opportunity to create more inclusive and personalized learning is also increasingly wide open. With a commitment to lifelong learning and adaptation to change, educators can be the main agents in shaping a generation that is not only intellectually intelligent, but also has character and is ready to face the future.

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