The Urgency of Character Education in the Era of the Industrial Revolution 4.0: A Review from a Philosophical Perspective

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Article Info

ABSTRACT

This study aims to explore the urgency of character education in the Industrial Revolution 4.0 era, characterized by the rapid development of digital technologies such as artificial intelligence, the Internet of Things (IoT), and big data. These changes provide significant opportunities for educational innovation, but also give rise to new challenges, such as the degradation of students' character and the dominance of technical skills over moral values. Using a qualitative approach using literature study methods, this study analyzes theories, concepts, and research findings related to character education in the global and Indonesian contexts. The results show that character education is a key element in preparing the younger generation to face the social and ethical challenges presented by technology. Integrating values such as honesty, responsibility, empathy, and digital ethics into the curriculum is crucial for shaping individuals who are not only technically skilled but also possess a solid moral foundation. Character education acts as a moral bulwark that helps students overcome the negative impacts of technology, such as digital addiction and data misuse. In conclusion, character education should not be merely an addition to the curriculum, but must become a central pillar in shaping a generation ready to compete globally while upholding noble values. In the face of rapid change, character education must be strategically designed to strengthen individual moral identity and promote social harmony in the digital era.

INTRODUCTION

The Industrial Revolution 4.0 marks an era of rapid change in various fields, including technological, social, economic, and cultural (Boiliu et al., 2024). Rapid developments in digital technologies, such as artificial intelligence, the Internet of Things (IoT), and big data, have transformed the way we interact, work, and learn. In the context of education, this era has had a significant impact on how we learn and teach. Digital technology enables broader access to information, enabling a more flexible and affordable learning process (Ghofur & Riski, 2024). Herlambang (2021) explains that the concept of current Indonesian life must be studied and

elaborated critically. This will allow us to gain a complete picture, understanding, and conclusions about the mental damage of the Indonesian nation caused by the foundations of life that violate humanitarian values. However, these changes also pose new challenges, such as a decline in the quality of education, a negative impact on students' character development, and their readiness to adapt to such rapid changes. Without adequate preparation, the younger generation can become entangled in the negative impacts of technology, such as digital dependency and a loss of empathy. Today, the development of science and technology has had a significant impact on all aspects of life, including the complexity of nature as a space for human life (Yunansah & Herlambang, 2017). Therefore, character education is a crucial aspect in equipping students not only with technical skills but also with strong moral values to face the challenges of the times.

Character education is a crucial pillar in shaping individuals who are not only intellectually intelligent but also possess strong personalities, high moral values, and are able to adapt to changing times (Najili et al., 2022). However, amidst rapid technological advances and increasingly easy access to information, character education is often overlooked. Safitri et al. (2022) explain that the independent curriculum is the most optimal curriculum for developing students' character. Many formal education programs place greater emphasis on academic achievement and technical skills, neglecting the moral and ethical aspects that should also be part of education in this modern era. The gap between idealized education, which encompasses both intellectual and character development, and the reality, namely the dominance of subject matter that focuses more on academic achievement and technical skills, is a major issue in today's education (Suwartini, 2017). In many countries, despite awareness of the importance of character education, consistent implementation in educational curricula and policies is still lacking, resulting in character education often being neglected. In the Indonesian context, although efforts have been made to incorporate character education into the curriculum, practice in the field still shows less than optimal results. This poses a challenge in creating a generation that is not only intellectually intelligent but also possesses the ability to behave in accordance with the noble values expected amidst the rapid changes of this era. Juliya and Herlambang (2021) explain that learning is a process of behavioral change resulting from an individual's interaction with the environment, even if only a change in behavioral tendencies encompassing knowledge, understanding, skills, and attitudes, both observable and unobservable.

The Industrial Revolution 4.0 has brought about significant changes in various aspects of life, including education. In this era of increasingly connected digital technology, nearly all sectors are undergoing rapid transformation, including the world of work, which now demands individuals with strong technical skills (Dito & Pujiastuti, 2021). Technology-based learning media requires the design and implementation of effective strategies to ensure optimal use of technology in educational contexts (Permana et al., 2024). However, technical skills alone are not enough. Today's workplace also requires individuals who can adapt to rapid change, work collaboratively in teams, think critically to solve problems, and possess a strong sense of responsibility. Therefore, education in the era of the Industrial Revolution 4.0 must emphasize the importance of developing not only cognitive abilities but also character development, encompassing emotional and moral aspects (Amrullah et al., 2024). Strong character traits, such as honesty, hard work, empathy, and a sense of responsibility, are essential assets for individuals in facing the various challenges that arise in this increasingly complex and fast-paced world. Character education, therefore, is not merely an additional lesson, but a fundamental foundation

that every individual must possess so they can navigate their lives wisely and responsibly, both in their personal lives and in broader social interactions. On the other hand, social and cultural changes brought about by technological advances, particularly in the digital era, demand adjustments to values within society (Yoga, 2019). The digital world, with all its ease of access to information and communication, has indeed opened up new opportunities in various aspects of life, such as education, the economy, and social interaction. However, this progress has also brought significant negative impacts, including a decline in empathy, increased social divisions, and a tendency to disregard ethics and morals in interactions, both in person and through social media. In many cases, cyberspace often displays the negative side of human nature, such as hate speech, discrimination, and increasingly sharp divisions between groups with differing opinions and ideologies. This phenomenon further undermines social cohesion in an increasingly fragmented society, leading to difficulties in building harmonious and respectful relationships.

This increasingly fragmented society requires individuals who not only possess the ability to master technology but also possess high emotional intelligence, strong moral values, and the ability to maintain social peace. Character education is highly relevant in this regard, as it can be an effective tool for developing individuals who are not only intellectually competent but also possess a strong moral awareness in facing social challenges (Suyitno, 2012). Strong character traits, such as integrity, empathy, a sense of responsibility, and the ability to collaborate and appreciate differences, are essential foundations for building a more inclusive, harmonious, and competitive society (Susilo et al., 2024). By prioritizing character education, it is hoped that individuals will be created who are able not only to understand and master technical skills but also to possess a deep sense of solidarity and social concern for others. In this context, character education becomes a crucial tool for addressing various social problems arising from technological developments, such as radicalization, intolerance, and a disregard for human values. Therefore, research on the urgency of character education in the era of the Industrial Revolution 4.0 is very important to ensure that our education system not only produces individuals who are skilled in technical fields, but also individuals who have good moral qualities, who can contribute to creating a generation that is able to face the challenges of the times wisely, responsibly, and empathetically. Murder data according to the Central Statistics Agency (2024) is as follows:

Table 1. BPS Data on the Number of Murder Cases in the Last Year (Cases), 2020-2022

Murder Incident	Number of Murder Cases in the Last Year (Cases)		
	2020	2021	2022
Amount	898	927	832

Table 1 shows data on the number of homicides in Indonesia over the past three years: 2020, 2021, and 2022. In 2020, there were 898 recorded homicides. This figure increased slightly in 2021, with a total of 927 recorded homicides. However, in 2022, the number of homicides decreased to 832. This fluctuation in the number of homicides provides insight into the development of violence and crime in Indonesia. Despite the decrease in 2022, the number of homicides recorded remains significant and demonstrates the importance of more effective preventive measures and law enforcement to reduce violence in society. These changes can be influenced by various factors, such as social tensions, crime prevention policies, and

socioeconomic conditions that contribute to increased crime. This data is crucial for understanding homicide patterns in Indonesia and provides a basis for planning future policies related to security and social justice.

The Central Statistics Agency (2024) reported that the number of immoral crimes in Indonesia, including rape and molestation, has increased since the pandemic. In 2020 and 2021, the number of rape and molestation cases in the country reached over 5,900 per year. This number is higher than the pre-pandemic period from 2017 to 2019. In the last five years, the highest number of rape and molestation cases occurred in 2020, reaching 6,872 cases. This figure increased 31.32% from the previous year's 5,233 cases. Despite a sharp increase in 2020, the number of rape and molestation cases in Indonesia began to decline in 2021, reaching 5,905 cases. Specifically, there were 1,164 rape cases in Indonesia in 2021, while there were 4,741 molestation cases. The number of rape and molestation cases in Indonesia over the past five years was the lowest in 2019, with 5,233 cases. The Central Statistics Agency (BPS) also conducted a 2022 survey on bullying rates among Indonesian students. The sad fact remains that most cases, by gender, occurred among male students, but female students also became victims.
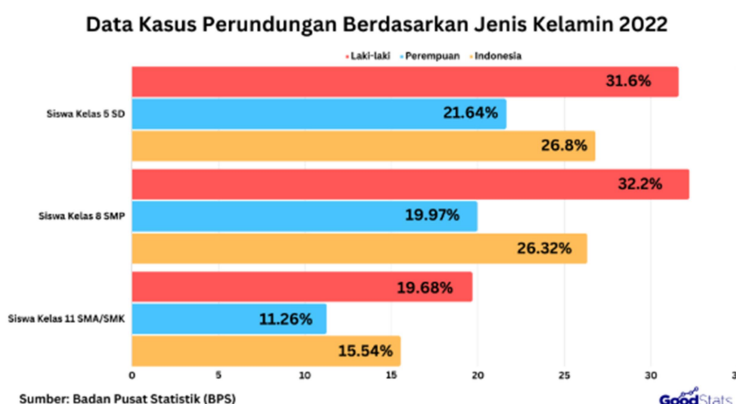

Figure 1. Bullying Case Data

The findings in this data are also relevant to a 2018 UNICEF Indonesia survey, which found that boys are more likely to experience bullying in educational settings. According to UNICEF Indonesia, physical and verbal threats, as well as social actions such as ostracism, are higher among male students.

This study aims to delve deeper into the urgency of character education in the Industrial Revolution 4.0 era from a philosophical perspective. In this context of rapid change, where digital technology has transformed almost all aspects of life, it is undeniable that education must adapt to these conditions (Latifah & Ngalimun, 2023). The main focus of this study is to identify and analyze the role of character education in shaping individuals who not only excel in intellectual aspects and technical skills, but also possess a strong moral and ethical foundation to face the increasingly complex challenges of the times. Amid the rapid development of technology, such as artificial intelligence and big data, the world of work requires individuals who are able to think critically, creatively, and responsibly, as well as possess high emotional intelligence (Irawan, 2019). Therefore, character education must be at the core of developing balanced individuals, both cognitively and morally, who are able to face various social, cultural, and technological challenges that arise over time. Through a philosophical perspective, this study will discuss the basics of character education philosophy that are relevant to developments in the world in the

digital era. This philosophical thinking is crucial for providing a theoretical foundation for designing an educational curriculum that focuses not only on academic achievement but also on character development. Character education is not just about teaching moral values, but also about how these values can be applied effectively in everyday life, both online and in the real world. In this context, this research aims to make a significant contribution to the development of educational policy in Indonesia by encouraging a stronger integration of character education at all levels of education. This research also distinguishes itself from previous studies that have focused more on technical and academic aspects, as this time it will delve deeper into the philosophical and theoretical aspects underlying the importance of character education. Furthermore, this research also aims to strengthen the argument for the importance of character education by utilizing various relevant educational theories and philosophies, as well as reviewing existing educational policies to provide evidence-based recommendations. Thus, it is hoped that this research can provide new insights that are useful for the formation of a more holistic educational policy, which not only prepares individuals with technical skills but also with high moral standards to create a better society in this digital era.

This research offers new value in the form of a deep philosophical approach to character education in the context of the industrial revolution 4.0. Often, research on character education is more focused on practical or empirical aspects without providing a strong philosophical basis for why character education is important, especially in this digital era. This research offers a new perspective that combines theories of character education with the global challenges faced by education in the digital technology era. By adopting a philosophical approach, this research will explore the basic values underlying character education and its relevance to the social, economic, and technological changes that are occurring. In addition, this research is also different because it will examine the relationship between character education and technological developments by using the latest studies from international literature, and suggest a more relevant and applicable character education model for the generation growing up in the midst of the industrial revolution 4.0. This research will explore how character education can be integrated into the educational curriculum that is more responsive to the challenges of the times, not just as additional material, but as a core element that must be present in every educational process. Therefore, the novel value of this research lies in how philosophy-based character education can be integrated with technology-based education in the digital age to create a generation that is not only intelligent but also ethical and responsible. This research is expected to make a significant contribution to formulating educational policies that focus not only on technological mastery but also on building a strong national character amidst the rapid advancement of the times.

METHODS

This research uses a qualitative approach with a literature review method (Darmalaksana, 2020). This approach was chosen because the main objective of the research is to explore the urgency of character education in the Industrial Revolution 4.0 era from a philosophical perspective, which prioritizes an in-depth understanding of existing concepts, educational theories, and relevant educational philosophies. Qualitative research is exploratory and descriptive, allowing researchers to identify various dimensions of the issue under study, as well as interpret philosophical thinking related to character education and its impact on education in the digital age. The literature review method was chosen as a way to collect data in the form of theories, concepts, and previous research results relevant to the research topic (Sofiah et al.,

2020). This literature review analysis will include recent studies, scientific articles, books, reports, and various other sources discussing character education, educational philosophy, and their relationship to the challenges of the Industrial Revolution 4.0. In this case, researchers will conduct an in-depth analysis of the existing literature to develop a broader understanding of the importance of character education, both in a global context and in Indonesia. This qualitative approach and literature study enabled the researcher to provide a strong philosophical argument about the relevance of character education in facing the challenges of the Industrial Revolution 4.0. Therefore, this approach is very appropriate for the research objective, which is to present philosophical thinking in character education and its relevance to technological developments.

The steps in data collection for this research were carried out through a comprehensive and systematic literature study. The data collection process begins with determining relevant keywords, such as "character education," "Industrial Revolution 4.0," "philosophy of education," "moral character in education," and various related terms that will be used to search for relevant literature. Researchers will seek references from various sources, including academic books, scientific journal articles, education policy reports, and documents discussing issues of character education and educational philosophy. The literature sources used in this research are literature published in recent years, to ensure that the study reflects the conditions of education in the era of the Industrial Revolution 4.0. These sources will include philosophical theories relevant to character education, as well as empirical studies on the implementation of character education in various countries or educational contexts. Researchers will also conduct a literature search that connects character education with technological developments and social changes occurring in the context of the Industrial Revolution 4.0. Once relevant literature has been found, the next step is to analyze these sources by noting key arguments, conclusions from previous research, and recommendations proposed by researchers (Afiyanti, 2005). During this process, researchers will record and organize the literature in the form of a catalog or reference database to facilitate further analysis. These data collection steps are carried out with the aim of gaining a deep and comprehensive understanding of the urgency of character education in the context of the industrial revolution 4.0.

The analytical techniques used in this study are thematic analysis and philosophical analysis. In thematic analysis, the researcher will identify key themes emerging from the various literature reviewed, such as the importance of character education, the impact of technology on education, the philosophy of character education, and the relationship between character education and social change occurring in the digital era (Hadi, 2020). These themes will be grouped based on conceptual similarities and their relevance to the issues raised in the study. Furthermore, in the philosophical analysis, the researcher will use a philosophy of education approach to analyze the rationale for character education. Several schools of educational philosophy that can be used in this analysis are pragmatism, idealism, and realism, each of which has a different perspective on developing character education. This analysis aims to provide a deeper understanding of how character education should be implemented in the era of the Industrial Revolution 4.0, based on the underlying philosophy of education itself. The analysis process is carried out by connecting educational theories and philosophy with empirical findings contained in the existing literature, to find relevant patterns or conclusions regarding the urgency of character education. Researchers will also synthesize various existing thoughts to provide constructive recommendations regarding the integration of character education into the existing education system.

The criteria or reference standards used in this study are credible, relevant, and up-to-date sources discussing character education and educational philosophy. The primary references in this study come from scientific journal articles published in leading international journals, academic books published by leading publishers, and reports from relevant educational institutions. The researcher will also utilize classical and contemporary educational theories to provide a strong foundation for analyzing character education. The study's thought process begins by identifying the basic concepts of character education and their relevance to the changing times resulting from the Industrial Revolution 4.0. Afterward, the researcher will analyze various theories of educational philosophy to explore philosophical perspectives on character education and how character education can be implemented in technology-based educational curricula. This study will also explore various educational policies implemented in Indonesia and other countries to integrate character education into the education system (Parinata & Puspaningtyas, 2022). In this study, the researcher's line of thought focuses on integrating philosophical thinking and empirical studies to provide a theory-based solution to address the gap between idealized education and the reality of character education practices in the digital age. The results of this study are expected to contribute to the development of more relevant and applicable character education policies in the era of the Fourth Industrial Revolution.

RESULTS AND DISCUSSION

The Industrial Revolution 4.0 era demands that education systems adapt new approaches that are more technology-based and provide practical skills, such as digital literacy, artificial intelligence, and programming (Yahya et al., 2023). However, it is important to remember that education serves not only to prepare individuals with technical skills but also to shape their character and morals. From a philosophical perspective, education should be more than just the transfer of knowledge or practical skills; it must also integrate the instillation of profound character values. Educational philosophers such as John Dewey argued that education is a social process that enables individuals to develop in various aspects, including intellectual, social, and moral. In this context, the Industrial Revolution 4.0, despite bringing rapid technological advances, must be balanced with efforts to instill character values that can shape individuals who are not only technically proficient but also possess a sense of social responsibility, empathy, integrity, and moral resilience. This approach reminds us that, amidst increasingly advanced technology, ethical and moral challenges are also crucial. Character education must be introduced more intensively in educational curricula, as a foundation that complements the technical skills taught in the digital age. Without good character, an individual's practical skills can be misused. Therefore, in character education, instilling moral and social values is essential, so that individuals become not only skilled workers but also responsible citizens who contribute to society.

As technology advances in the Industrial Revolution 4.0, increasingly complex social and ethical impacts emerge. These include issues of privacy, data misuse, and technology addiction, which can undermine an individual's quality of life. In this context, character education serves as a moral bulwark that can help individuals face these challenges wisely (Rahman et al., 2023). Philosophers such as Immanuel Kant suggest that education should shape individuals with clear moral principles, enabling them to act in accordance with moral law and a sense of responsibility. In the context of the Industrial Revolution 4.0, character education must teach students to

recognize and understand the consequences of their actions in the digital world and provide a moral foundation for making ethical decisions. In practice, character education in the digital era can include learning about the ethics of technology use, respect for others' privacy, and how to maintain a balance between the virtual and real worlds. Character education based on digital ethics will provide the younger generation with an understanding of how to use technology for good purposes and how to respond to the potential negative impacts of technology, such as cyberbullying, hoaxes, or information manipulation. Therefore, character education must also include instilling values such as responsibility, respect, and honesty in the context of the digital world.

The Industrial Revolution 4.0 has brought about significant changes in social and cultural life, with various challenges related to individual social and moral identity. Rapid changes in the way we interact, work, and learn have transformed the younger generation's perspective on social values. Therefore, character education plays a crucial role in helping individuals shape their moral identity in the face of evolving social dynamics (Brata & Rai, 2023). From a philosophical perspective, character education can be seen as the process of forming moral habits through conscious and purposeful actions. This aligns with Aristotle's view of education as the formation of lifelong good habits, leading not only to the attainment of knowledge but also to virtue. Amidst technological advances that change individuals' perspectives and mindsets, character education plays a role in providing a solid foundation for the younger generation to uphold moral principles consistent with the social values cherished by society. Character education based on strengthening universal values such as justice, empathy, and compassion will guide individuals to face differences and social change with a wise attitude. In addition, character education can also strengthen a sense of nationalism and rich cultural identity, which will shape a young generation that is able to compete in the global world without losing their cultural roots.

One of the biggest challenges in the Industrial Revolution 4.0 era is the ability to continuously adapt to rapid technological change. Formal education, especially in schools, must be able to provide sufficient space to develop the practical skills and character values needed to face this rapidly changing world. In many countries, education has begun to integrate technology learning into their curriculum, but often neglects the teaching of moral and social values. This is where the role of integrated character education in the curriculum becomes crucial as part of a response to the demands of the times (Pare & Sihotang, 2023). Educational philosophers such as Paulo Freire emphasize the importance of critical and holistic education, which not only develops technical skills but also fosters a critical understanding of the existing social and technological world. In Indonesia, for example, although there have been several efforts to integrate character education into the curriculum, the biggest challenge is how to ensure that these character values truly become an integral part of every aspect of learning, not merely an addition or supplement. Character education must be systematically integrated into all subjects, from science to mathematics and technology, to shape individuals who are not only intelligent but also responsible, virtuous, and committed to social welfare. Character education in this digital age must teach values that are relevant not only to real life but also to the ever-expanding virtual world.

Amidst rapid technological advancements, many see the potential of technology as a tool to support character education. The use of technology in education is not limited to teaching practical skills but can also be an effective means of instilling moral values that are relevant to the challenges of the times. One innovation that can be implemented is the use of social media and

technology-based learning applications to disseminate character values widely (Imawan et al., 2023). For example, online platforms can be used to teach the importance of respect for others, tolerance, and wisdom in acting online. Technology can serve as a tool that connects various moral values in a more interactive, engaging, and relevant way for a younger generation who are more familiar with the digital world. The application of technology in character education can also include the use of simulations or educational games specifically designed to teach character values, such as cooperation, honesty, and courage. This technology allows students to directly experience the impact of their actions, thereby strengthening the internalization of moral values in everyday life. Thus, the integration of technology in character education is not only to increase the effectiveness of learning, but also to ensure that the younger generation is ready to face the ethical and social challenges that will come in the era of the Industrial Revolution 4.0.

Education in the era of the Industrial Revolution 4.0 must go beyond simply preparing individuals with technical skills. Beyond practical skills such as mastery of technology and artificial intelligence, education must also focus on building students' character and morals. Character education plays a crucial role in helping individuals develop moral values such as integrity, responsibility, empathy, and honesty. In a world increasingly influenced by technology, character education becomes a tool for addressing emerging social, ethical, and moral challenges. Without a strong character foundation, individuals' technical skills are at risk of being misused. Therefore, character education must be integrated into the educational curriculum at all levels to develop intelligent and responsible individuals who can wisely face the challenges of the times. Furthermore, character education also serves as a response to the social and ethical impacts of technological advancements. In addressing phenomena such as data misuse, technology addiction, and cyberbullying, character education plays a crucial role in providing an understanding of the ethics of technology use. The younger generation needs to be taught how to make wise and ethical decisions in the digital world. By integrating character education into the curriculum, it is hoped that individuals will be created who are not only technically skilled but also possess a strong moral awareness. This will support the creation of a more harmonious, inclusive and responsible society in facing the challenges arising from technological developments.

Education in the Industrial Revolution 4.0 era must encompass both technical skills and in-depth character education. In addition to preparing individuals with digital and practical skills, education also needs to instill moral values that support integrity, social responsibility, and empathy. Character education plays a crucial role in shaping individuals who are not only technically skilled but also capable of facing the ethical and social challenges arising from technological advancements. Integrating character education into the curriculum will ensure that the younger generation not only possesses skills but also a strong moral awareness in navigating the digital world. Policies are needed that systematically integrate character education throughout the educational curriculum, from basic subjects to technology. The use of technology as a tool to support the learning of moral values can be expanded, for example, through technology-based educational applications that teach digital ethics. Character education must be an integral part of the character development of the younger generation so that they are prepared to face the social and ethical challenges of the digital era.

CONCLUSION

The character education is a key element in preparing the younger generation to face the social and ethical challenges presented by technology. Integrating values such as honesty, responsibility, empathy, and digital ethics into the curriculum is crucial for shaping individuals who are not only technically skilled but also possess a solid moral foundation. Character education acts as a moral bulwark that helps students overcome the negative impacts of technology, such as digital addiction and data misuse. In conclusion, character education should not be merely an addition to the curriculum, but must become a central pillar in shaping a generation ready to compete globally while upholding noble values.

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