



## The Era of Industrial Revolution 4.0 and the Existence of Islamic Education at Indonesia

M. Imamuddin<sup>1</sup>, Zaharuddin M<sup>2</sup>, Andryadi<sup>3</sup>, Isnaniah<sup>4</sup>, Febria Sri Artika<sup>5</sup>

<sup>1,4,5</sup> Institut Agama Islam Negeri Bukittinggi, Indonesia,

<sup>2</sup> Institut Agama Islam Tebo Jambi, Indonesia

<sup>3</sup> Institut Agama Islam Yasni Bungo, Jambi, Indonesia

<sup>1</sup> m.imamuddin76@yahoo.co.id; <sup>2</sup> zahar.unu92@gmail.com;

<sup>3</sup> andryadi228@gmail.com; <sup>4</sup> iis\_imam@yahoo.co.id

<sup>5</sup> febria.artika80@gmail.com

---

### Abstract

**Keywords:**  
Industrial  
Revolution  
4.0; Islamic  
Education.

The 4.0 industrial revolution has significant impacts on all aspects of education, including Islamic education in Indonesia. The purpose of this paper is to present a concept for preserving Islamic education in the 4.0 Industrial Revolution era. This study is a library research, and the data are collected by reviewing and exploring several journals and books, as well as other relevant sources. This study suggests that Islamic Education, as an Islamic based educational institution, should take several steps to ensure that its existence in the era of industrial revolution 4.0 is not drowned out by various competitions, including: a) creating creative Islamic education, b) reforming and updating Islamic education, c) capacity building in the fields of technology and literacy, and d) implementing the concept of integration and interconnection of Islamic Education.

---

### Abstrak:

**Kata Kunci:**  
Revolusi Industri  
4.0; Pendidikan  
Islam.

*Era revolusi industri 4.0 berdampak besar terhadap semua lini dalam dunia pendidikan, tidak terkecuali terhadap pendidikan Islam di Indonesia. Tujuan dari tulisan ini adalah untuk memberikan tawaran konsep guna mempertahankan eksistensi pendidikan Islam di era revolusi Industri 4.0. Penelitian ini merupakan penelitian pustaka dan teknik pengumpulan data dilakukan dengan menelaah dan mengeksplorasi beberapa jurnal dan buku serta sumber data lainnya yang dianggap relevan dengan penelitian. Penelitian ini menawarkan agar Pendidikan Islam sebagai lembaga pendidikan yang berbasis agama Islam perlu melakukan beberapa langkah agar eksistensinya di era revolusi industri 4.0 tidak tenggelam dalam berbagai persaingan, antara lain: a) Menciptakan pendidikan Islam kreatif, b) Reformasi dan Pembaharuan pendidikan Islam, c) Peningkatan kemampuan dalam bidang teknologi dan literasi, dan d) Melaksanakan konsep integrasi dan interkoneksi Pendidikan Islam.*

Received : 25 Oktober 2021; Revised: 15 November 2021; Accepted: 12 July 2022

<http://doi.org/10.19105/tjpi.v17i1.5178>

© Tadris Jurnal Pendidikan Islam  
Institut Agama Islam Negeri Madura, Indonesia



This is an open access article under the **CC-BY-NC** license

## 1. Introduction

Nowadays, Indonesia is embarking on a new age called Industrial Revolution 4.0, marked by changes or shifts in all aspects of life, including education, industry, economy, and politics. Human role as essential subjects in the growth and development of the aspects of life has been gradually replaced by computer automation and digitalization. The Industrial Revolutionary Implications are two separate ways; while the innovation has a very positive effect on job productivity and efficiency in the manufacturing sector, the competitive nature of the workplace leads to a reduction in labor.<sup>1</sup>

No one can avoid this industrial revolution 4.0. Therefore, the government must prepare human resources to compete on a global scale. Enhancing the quality of human resources through education channels ranging from elementary, secondary to tertiary education is the key to being able to follow the transformation of this new era.<sup>2</sup> The foundation of this change is a fascination to meet the quality and speed of human needs. Industrial Revolution 4.0 has altered people's way of working from manual to digitalization or automation. The 4.0 Industrial Revolution has a demanding impact; it affects all aspects of human life, including education, especially Islamic education.

Education is essential to human life. Through education, human beings should be able to cope with the different aspects of the world to continue their lives. Islam considers education in its most significant and highest position due to the importance of education.<sup>3</sup> Similar to Islamic education, it must be able to provide enlightenment and guidance to humanity in the face of increasingly complex life challenges. Islamic education is therefore a solution for Muslim adults who are actively guiding and guiding the growth and development of the essence (basic skills) of students by Islamic teaching to the highest point of growth and development.<sup>4</sup>

Yusuf Al-Qadrawi in Azyumardi Azra explained that Islamic education is the education of the entire individual, his mind and heart, his spiritual and physical, his morals, and his skills.<sup>5</sup> Islamic education is, therefore, one type of manifestation of the ideals of life of Muslims to maintain, redirect and instill (internalize) and transform Islamic values into the next generation of personalities, so that the religious-cultural values they aspire to that continue to work and evolve in society from time to time.

<sup>1</sup> Hendra Suwardana, "Revolusi Industri 4. 0 Berbasis Revolusi Mental," *JATI UNIK: Jurnal Ilmiah Teknik Dan Manajemen Industri* 1, no. 2 (2018): 109–118.

<sup>2</sup> Delipiter Lase, "Pendidikan Di Era Revolusi Industri 4.0," *SUNDERMANN: Jurnal Ilmiah Teologi, Pendidikan, Sains, Humaniora dan Kebudayaan* 12, no. 2 (2019): 28–43.

<sup>3</sup> Miftaku Rohman, "Konsep Pendidikan Islam Menurut Ibn Sina Dan Relevansinya Dengan Pendidikan Modern," *Epistemé: Jurnal Pengembangan Ilmu Keislaman* 8, no. 2 (2013): 279–300.

<sup>4</sup> H M Arifin and Fauzan Asy, *Ilmu Pendidikan Islam: Tinjauan Teoritis Dan Praktis Berdasarkan Pendekatan Interdisipliner* (Bumi Aksara, 2006).

<sup>5</sup> Azyumardi Azra and I Thaha, "Pendidikan Islam: Tradisi Dan Modernisasi Di Tengah Tantangan Milenium III . Jakarta," *Kencana Prenadamedia Group* (2012).

In addition to the times of automation and digitalization, the challenges and barriers of Islamic education continue to develop and improve.<sup>6</sup> Among them is the paradigm shift in education, for example in terms of the learning approach, in the age of traditional Islamic education, the teacher has become a central figure in learning activities, it is the main source of knowledge in the classroom, and can even be said to be the only one. Nevertheless, it is no longer valid in the sense of modern Islamic education. A teacher is a student facilitator; the learning process has become student-centered, not teacher-centered, as before. Similar changes have also occurred in the 4.0-era industrial revolution with the use of cyber technology, learning takes place through the integration of cyber technology both physically and not through learning.

With the development of more advanced times and the uncomplicated impact of the industrial revolution, how does Islamic education prove its existence? Which are the steps Islamic education has taken to tackle the problems of the 4.0 Industrial Revolution?

In terms of technological advancement, Islamic education has a responsibility to maintain Islamic values. Islamic education should not ignore technological developments that have a significant impact on life, both positively and negatively. However, rather than being unable to compete in the world of digitalization, Islamic education must be able to take advantage of and elaborate on the sophistication of technology for the development of education.

In reality, Islamic education is in a bad state at the moment. Islamic education, which should be used as an ideal educational model, demonstrates the inverse situation. Islamic education is in decline and lags far behind Western education. Islamic education is no longer portrayed as an educational institution that serves as a global mecca, as it did during the golden age of Islamic civilization, such as in Andalusia and Baghdad.<sup>7</sup>

## 2. Methods

In this paper, the researchers used library research, a sequence of activities to collect information, library data, read, record, and process research material that is relevant to the topic or problem of the object of research.<sup>8</sup> Data can be collected from books, research articles, theses, dissertations, encyclopedias, journals, and other sources.

The data collection of the research is conducted by reviewing and examining various online and printed books, journals, and documents, and other relevant references.<sup>9</sup> The next step taken by the researcher is data analysis. Data analysis is a method used to process the data obtained during the study to conclude.<sup>10</sup> In this library research, the researchers used content analysis to interpret and code the textual data. This research technique is used to generate infrequently and validate the data based on the context.<sup>11</sup> The stages of the content analysis carried out by researchers are as follows: problem identification,

---

<sup>6</sup> Sigit Priatmoko, "Memperkuat Eksistensi Pendidikan Islam Di Era 4.0," *TA'LIM: Jurnal Studi Pendidikan Islam* 1, no. 2 (2018): 221–239.

<sup>7</sup> Syamsul Ma'arif, *Revitalisasi Pendidikan Islam* (Graha Ilmu, 2007).

<sup>8</sup> Mestika Zed, *Metode Penelitian Kepustakaan* (Yayasan Obor Indonesia, 2004).

<sup>9</sup> Arikunto Suharsimi, "Manajemen Penelitian (Jakarta: Rineka Cipta,), 2010," *Prosedur Penelitian Suatu Pendekatan Praktik* (1990).

<sup>10</sup> Irja Putra Pratama and Zulhijra Zulhijra, "Reformasi Pendidikan Islam Di Indonesia," *Jurnal PAI Raden Fatah* 1, no. 2 (2019): 117–127.

<sup>11</sup> Krippendorff Klaus, "Analisis Isi Pengantar Teori Dan Metodologi," *Jakarta: PT. Raja Grafindo Persada* (1993).

framework of thinking, methodology, data analysis, and interpretation of the data.<sup>12</sup>

### 3. Result and Discussion

#### 3.1. The Industrial Revolution 4.0

Indonesia was faced with a new period of rapid technological transition at the beginning of 2018. These developments are part of the fourth industrial revolution known as Industrial Revolution 4.0. The emergence of this period in the context of the advancement of highly advanced technologies has a significant effect on all aspects of human life, such as artificial intelligence, digital commerce (e-commerce), giant data, financial technology, economic sharing, to the use of robots.<sup>13</sup> During the industrial revolution, less physical activity is linked to geographical locations, as all human activities are converted from manual to digital.

Industrial revolution derives from two (2) words: revolution and industry. Revolution, in the Indonesian Language Dictionary (KBBI), is defined as rapid change, while industry means an effort to perform the production process. Thus, the industrial revolution is a fast-paced shift in the manufacturing cycle. The goal of this rapid change is not only to increase the number of goods produced (quantity) but also to improve the quality of production (quality).<sup>14</sup>

The word "Industry 4.0" emerged in German at the Hannover Fair in 2011. This country is very concerned about this issue, as it is part of the German Advancement Planning Program, known as the 2020 High-Tech Strategy. The goal of this policy is to maintain Germany as the world's leading manufacturing country.<sup>15</sup> Other countries also participated in the application of the Industry 4.0 concept under different terms, such as Industrial Internet of Things, Smart Factories, Advanced Manufacturing, and Smart Industry. Although they have a distinctive name, they have the same objective of increasing the industrial competitiveness of each country in the face of a complex global market. This is due to the rapid growth in the use of digital technologies in various fields.<sup>16</sup>

Friedrich Engels and Louis Auguste Blanqui initiated the Industrial Revolution in the middle of the 19th century. It evolves as the fourth stage of 4.0 until now. The transition of phases produces a consistent distinction in structure and practice which has a profound effect on human life. The first stage (1.0) is characterized by the introduction of machines and the focus on manufacturing mechanization; the second phase (2.0) is the transition to the mass production process, which is combined with standardization and quality control; the third phase (3.0) is the method of industrial uniformity based on computerized integration and the last step (4.0) by addressing the incorporation of automation and digitalization of manufacturing with the internet.<sup>17</sup>

---

<sup>12</sup> Burhan Bungin, "Metodologi Penelitian Kualitatif: Aktualisasi Metodologis Ke Arah Ragam Varian Kontemporer, PT Raja Grafindo Persada," *Jakarta. Hal* 25 (2008).

<sup>13</sup> Farid Abdullah, "Fenomena Digital Era Revolusi Industri 4.0," *Jurnal Dimensi DKV Seni Rupa dan Desain* 4, no. 1 (2019): 47–58.

<sup>14</sup> Priatmoko, "Memperkuat Eksistensi Pendidikan Islam Di Era 4.0."

<sup>15</sup> M Imamuddin, "Students' Understanding of Mathematical Concepts Using Manipulative Learning Media in Elementary Schools," in *Journal of Physics: Conference Series*, vol. 1471 (IOP Publishing, 2020), 12050.

<sup>16</sup> Hoedi Prasetyo and Wahyudi Sutopo, "Industri 4.0: Telaah Klasifikasi Aspek Dan Arah Perkembangan Riset," *J@ ti Undip: Jurnal Teknik Industri* 13, no. 1 (2018): 17–26.

<sup>17</sup> Suwardana, "Revolusi Industri 4. 0 Berbasis Revolusi Mental."

In addition, Hermann explained four principles of 4.0 for industrial design. First, interconnection is the competence of computers, appliances, sensors, and individuals to connect and interact with each other through the Internet of Things (IoT) or the People's Internet (IoP). Interconnection is about security, standards, and teamwork. Second, transparency of information. This is the ability of information systems to make copies of the physical world virtually by upgrading digital models with sensor data, including the provision of information and data analysis. Third, the following technical assistance: (a) the capacity of the program to assist people by effectively applying and evaluating information in order to make the right decisions and address vital problems immediately; (b) the ability of the system to assist people by conducting stressful, frustrating or hazardous tasks; (c) the ability to provide visual and physical assistance. Fourth, decentralized recommendations, that is the capacity of virtual physical systems to implement their resolutions and perform tasks most effectively.<sup>18</sup>

Industrial 4.0 is also referred to as the "digital revolution" and the "technological disruption era." It's called a digital revolution due to the rapid automation and computer record in all areas. Industry 4.0, however, faces challenges 4.0: Firstly, the security of information technology; secondly, the production system is reliable and stable; thirdly, the lack of sufficient skills; fourthly, the reluctance of stakeholders to adjust; fifthly, the loss of a lot of jobs because of automation.<sup>19</sup> On the other hand, development also has a positive impact on all aspects of human life, such as economic, social, educational, and political. These opportunities are taken for the advancement of the Indonesian.

### **3.2. The Concept of Islamic Education**

Education is an attempt to prepare individuals to be able to face this life beautifully, to live peacefully, to love the air and the ground, to be physically healthy, morally good, intelligent, to support one another, and to change one's acts.<sup>20</sup> Islamic education can also be interpreted as an attempt to create and improve the basic human potential by adhering to the teachings of Islam through the writings of the Prophet Muhammad, to make it possible for human beings to have proper faith as servants of God or caliphs on this planet. As a result, the consequences of Islamic education have led Muslims to live well, to create a safe and prosperous state by securing a secure life in the world and hereafter.<sup>21 22</sup>

Islamic education encompasses all facets of human life in accordance with the needs of the servants of Allah, which originate from the Qur'an and the Hadith and the Ijtihad of Ulama, for the good of Ummah, including those of worldly

---

<sup>18</sup> Yahya Muhammad, "Era Industri 4.0: Tantangan Dan Peluang Perkembangan Pendidikan Kejuruan Indonesia" (2018).

<sup>19</sup> Hamidulloh Ibda and E Rahmadi, "Penguatan Literasi Baru Pada Guru Madrasah Ibtidaiyah Dalam Menjawab Tantangan Era Revolusi Industri 4.0," *JRTIE: Journal of Research and Thought of Islamic Education* 1, no. 1 (2018): 1–21.

<sup>20</sup> Abd Rachman Assegaf, "Aliran Pemikiran Pendidikan Islam: Hadharah Keilmuan Tokoh Klasik Sampai Modern," *Jakarta: PT Raja Grafindo Persada* (2013).

<sup>21</sup> Rofiqi Rofiqi, "Pendidikan Islam Di Era Industri 4.0 (Studi Analisis Terhadap Tantangan Profesionalisme Guru Pendidikan Agama Islam)," *FIKROTUNA* 10, no. 02 (2019): 1243–1257.

<sup>22</sup> M Imamuddin, Andryadi Andryadi, and Zulmuqim Zulmuqim, "Islamic Education In The Al-Qur'an and Sunnah (Study About the Meaning of Education and Implication for Educator)," *Jurnal Educative: Journal of Educational Studies* 5, no. 1 (2020): 70–83.

interest and the need of Ukhrawi. Therefore, all branches of science which hold the value of problems and benefits for humanity are part of Islamic education.<sup>23, 24</sup>

In addition, it has also been stated that Islamic education is an effort of adult Muslims who fear Allah SWT by consciously directing and guiding the growth and development of the student nature through Islamic teachings towards the highest point of growth and development.<sup>25</sup> Islamic education is therefore an approach that focuses mainly on fostering student growth and development in line with Islamic education.

Islamic education is vital in all areas of human life, as it is directly linked to all its ability to transform culture, social structure, and human factors. Educational advancement is needed, as it is known because it is a system that can contribute to the new paradigm.<sup>26</sup> In this digital age, Islamic education is designed to shape the generation of Muslims, to allow them to live on, to be safe, stable, harmonious, and prosperous with their knowledge and skills. The concept of Islamic education is picturized to prepare and foster every individual Muslim in such a way that he is competent in the Islamic faith, daily practice, and proficient in applied practical science to control the natural capital in an attempt to meet everyday needs.<sup>27</sup>

Islamic education is formally seen as an ideal pedagogy that combines the concepts of the world and *ukhrawi* balances based on revelations (al-Quran and hadith) and *ijtihad* (creations of thought in Islam). It facilitates various activities and educational programs at the level of planning, implementation, and evaluation.<sup>28</sup> In the present period, it is important to articulate the need to change the goals of Islamic education. It should be not only cognitively oriented, given the highly multicultural composition of the Indonesian population, consisting of ethnic, religious, and cultural diversity but also in line with the evolution of the era. The purpose of Islamic education can no longer be ignored in debate, it should apply to socio-cultural principles and pursue the advancement of technology as a basis other than the Qur'an and the Al-Hadith.<sup>29</sup> Based on this definition, Islamic education is needed to be able to prepare the next generation, equipped with *Imtaq (Iman & Taqwa)* and *Imtek (Iman & Teknologi)*.

Teaching Islam means preparing the next generation to save the nation as it continues to develop and maintain that nation. The educator's mission, therefore, is to prepare the educated generation to be able to face the future of the 4.0 Industrial Revolution era with a better provision of Islamic education.<sup>30</sup>

---

<sup>23</sup> Fauti Subhan, "Konsep Pendidikan Islam Masa Kini," *Jurnal Pendidikan Agama Islam (Journal of Islamic Education Studies)* 1, no. 2 (2013): 353–373.

<sup>24</sup> M Imamuddin et al., "The Role of Women as Educators," *NUR EL-ISLAM: Jurnal Pendidikan dan Sosial Keagamaan* 7, no. 2 (2020): 138–157.

<sup>25</sup> Aida Dwi Rahmawati, "Pendidikan Islam Kreatif Era Industri 4.0 Perspektif Abuddin Nata," *Ta'allum: Jurnal Pendidikan Islam* 7 (2019): 1.

<sup>26</sup> Miftahur Rohman and Hairudin Hairudin, "Konsep Tujuan Pendidikan Islam Perspektif Nilai-Nilai Sosial-Kultural," *Al-Tadzkiyyah: Jurnal Pendidikan Islam* 9, no. 1 (2018): 21–35.

<sup>27</sup> Shulhan Alfinnas, "Arah Baru Pendidikan Islam Di Era Digital," *Fikrotuna* 7, no. 1 (2018): 803–817.

<sup>28</sup> Nuryadin, "Strategi Pendidikan Islam Di Era Digital," *Fitrah: Jurnal Kajian Ilmu-ilmu Keislaman* 3, no. 1 (2017): 209–226.

<sup>29</sup> Rohman and Hairudin, "Konsep Tujuan Pendidikan Islam Perspektif Nilai-Nilai Sosial-Kultural."

<sup>30</sup> Rt Bai Rohimah, "STRATEGI PENDIDIKAN ISLAM MENYONGSONG GENERASI REVOLUSI 4.0," in *Prosiding Seminar Nasional Pendidikan FKIP*, vol. 2, 2019, 715–722.

### **3.3. The Existence of Islamic Education in the 4.0 Industrial Revolution Era**

The challenges of Islamic education are serious and complex, and one of them refers to the global challenge. Globalization is a modern form of globalization that has a synergy with Industrial Revolution 4.0, the latest Western policy of universalizing Western civilization and its principles. Through the narrative of the Industrial Revolution 4.0, embodied in technological sophistication, intentionally designed to accelerate the industrialization of the public interest, so that the world depends on the West.

Rapid technological advances have given rise to a new society. Rapid learning in the era of globalization brings devastation to the walls of beliefs and customs. Jean Baudrillard, a postmodern philosopher, argues that globalization has implications for a shift in value. This period is characterized by the degradation of standards and tabuistic boundaries; the sacred ideals have slowly been lost and deconstructed. All taboo information is free to be discussed and consumed in public without any sense of shame, embarrassment, or anxiety. Even the issue of sexuality in the mass media receives enormous attention from the community.<sup>31</sup> If these phenomena are not properly anticipated, the ethics and morality of future generations will be damaged and even destroyed.

The inevitable changes call for superior and adequate human capital to be prepared to adapt and perform on a global scale. Enhancing the quality of human capital by education from primary, secondary, and tertiary education is the secret to keeping up with the 4.0 Industrial Revolution era.<sup>32</sup> Similarly, Islamic education must be able to interact and take advantage of the possibilities of the evolution of the century. Partial and short-term steps and plans are not an option, because they need to be more detailed and integrated.

The specified strategy should cover various aspects, from preparing, organizing, executing, monitoring to evaluation, involving various components of the Islamic education system, such as goals, human resources, curriculum, environment, assessment, and other aspects. It is therefore predicted that Islamic education will be able to emerge with all the advantages of its wealth by developing and implementing those aspects properly.<sup>33</sup> In implementing the strategy and planning, and to continue the role of Islamic education in the 4.0-era Industrial Revolution, the researchers looked at the following steps:

#### *3.3.1. Designing Innovative Islamic Education*

Islamic education, as part of the national education system, is now faced with new challenges as a result of the changes of the period, known as the era of globalization, which is now even more advanced, known as the era of digitalization which automation. Solutionary and anticipatory strategies are required to resolve these challenges.

According to Tilaar, if the old strategy is used to confront new challenges, all efforts made will fail. This requires Islamic thinkers and practitioners to be able to find an effective Islamic education strategy for coping with global life.<sup>34</sup> Based on the researchers' analysis, the first step taken by Islamic education is to design an innovative Islamic education in line with current demands and needs, Islamic

---

<sup>31</sup> Siswanto Siswanto and Yuli Anisyah, "Revitalisasi Nilai-Nilai Qur'ani Dalam Pendidikan Islam Era Revolusi Industri 4.0," *Islamuna: Jurnal Studi Islam* 5, no. 2 (2018): 139–146.

<sup>32</sup> Lase, "Pendidikan Di Era Revolusi Industri 4.0."

<sup>33</sup> NURYADIN, "STRATEGI PENDIDIKAN ISLAM DI ERA DIGITAL."

<sup>34</sup> Mawardi Pewangi, "Tantangan Pendidikan Islam Di Era Globalisasi," *TARBAWI: Jurnal Pendidikan Agama Islam* 1, no. 1 (2016): 1–11.



education will therefore certify compatible alumnus at the national and international levels.<sup>35</sup>

Islamic education is called for to be more sensitive to the trends of social change that have taken place in society. So it has become important for Islamic education to make a very serious effort to transform the old way of thinking that is limited to hierarchical laws, to a revolutionary way of thinking that appears to be more cooperative. Islamic education is also called upon to do self-driving to be able to innovate according to the guidance of era 4.0. Moreover, Islamic education must also reshape or build all facets of it so that it is still contextual to the demands and changes of the times. Therefore, Islamic education must direct its efforts to develop imaginative, inventive, autonomous, and successful personalities and to prepare for a competitive world. Such issues will rise to innovative Islamic education, that is, education that seeks to shape creative people by enhancing their natural capacity to confront the development of humanity in the 4.0 Industrial Revolution period with Islamic teachings.<sup>36</sup>

Innovative means the ability to recognize, develop and generate effective innovation based on needs analysis. Amin defines innovation as a pattern of thought or idea that arises spontaneously and imaginatively and characterizes artistic results, scientific discoveries, and mechanical creation.<sup>37</sup> Therefore, creativity is described as the ability to think or do something that generates ideas and the ability to solve phenomena in society in accordance with the times.

Innovative education is not limited to teaching creative technics to students through mental stimulation and instant conditioning. It should be focused on the creation of thought, character, creative culture at all levels, from classrooms, colleges, organizations, material, curriculum to the national creative education framework, which values and encourages the emergence of innovative choices. Once again, all criteria in the industrial revolution era 4.0 must be met with sufficient skills, including technology-based literacy.<sup>38</sup>

### 3.3.2. Reform and Renewal of Islamic Education

Islamic education would be overtaken by the advent of the 4.0 age of the industrial revolution. The existence is unavoidable as all sectors of life, including Islamic education, have embarked on this period. This situation pushes us to move forward and to take advantage of the resources available by reforming Islamic education.

There are two main reasons for the importance of modernizing and reforming Islamic education, namely: first, the concepts and practices of Islamic education have been overly diminished, emphasized on the interests of the afterlife, which have given rise to the scientific dichotomy that has been handed down to Muslims since the fall of Islam. This dichotomy comprises (a) the dichotomy between religious and non-religious sciences, which perpetuates the monotonous dominance of religious sciences; (b) the dichotomy between revelation and nature, which explains the lack of scientific study in Islamic education, and (c) the dichotomy of faith and rationality. Second, the existing Islamic educational institutions have been unable to meet the needs of Muslims in the face of the

---

<sup>35</sup> Febria Sri Artika, Widya Syafitri, and Risdaneva Risdaneva, "Developing Life Skill Based English Instructional Material in Bilingual Pesantren," *Al-Ta lim Journal* 27, no. 3 (2020): 272–281.

<sup>36</sup> Rahmawati, "Pendidikan Islam Kreatif Era Industri 4.0 Perspektif Abuddin Nata."

<sup>37</sup> Mahmudah Mahmudah, "Pengembangan Kreativitas Pendidikan Islam Di Indonesia (Telaah Urgensi Proses)," *Jurnal Kependidikan* 2, no. 1 (2014): 52–70.

<sup>38</sup> Rahmawati, "Pendidikan Islam Kreatif Era Industri 4.0 Perspektif Abuddin Nata."



demands of the modern world and Indonesians in all facets of life.<sup>39</sup> Therefore, Islamic education will also make a dynamic contribution to transforming the paradigm of modern education in the face of the industrial revolution of 4.0 well.

Islamic education should be able to find the solution to its' obstacles in facing the era of digitization and automation; otherwise, Islamic education would find it is difficult to compete with other education. It is, therefore, necessary, as stated above, for all aspects of Islamic education to reform and renew the movement. Rhenald Kasali clarified that Islamic education must take three steps to survive and succeed in this 4.0-era period, namely disruptive mindset, self-driving, and reshaping or developing.<sup>40</sup>

### 3.3.3. *Improvement in Technology and Literacy*

This fast-paced and sophisticated change in the world is popular as the Industrial Revolution 4.0 era, where the pattern of human life is based on information. Islamic education needs to prepare for the quality of graduates and be able to compete globally. In addition, mastering technological development is essential for all people and the future of the nation. Therefore, Islamic educational institutions must enhance various aspects of education, such as curriculum, systems, management, models, strategies, and learning methods by strengthening literacy skills, in this case, the ability to use technology and information.

The concept of new literacy emerged formally on 17 January 2018 during the National Working Meeting of the Ministry of Research, Technology, and Higher Education (Kemristek Dikti). At that time, a new concept of literacy arose as a means of preparation for the Kemenristek Dikti to embrace the age of disruption. Data, technology, and human resources are emerging literacy. Humans need to use and process data, apply it to technology and understand the use of technology. Human literacy is crucial for survival in this age, human goals should function well in their environment and human interactions should be understood.<sup>41</sup>

The fact that technology, information, and communication (ICT) literacy need to be implemented as soon as possible at the level of education cannot be denied. This was done in an attempt to bring the renewal and creativity of education to this period. These ICT literacies can be extended from the primary, secondary, and higher education levels. In addition, this initiative will also extend to trained people, not only learners but also teachers and employees of the education administration.<sup>42</sup>

Hague also argues that digital literacy is the capacity to communicate and constitute in various ways and designs; to conceive, collaborate and connect more effectively, and to understand the process and time required to use suitable digital technology to set up the process.<sup>43</sup> Therefore, it can be inferred that the

---

<sup>39</sup> Suharto, "Pendidikan Islam Di Era Revolusi Industri 4.0," *SALIHA: Jurnal Pendidikan & Agama Islam* 2, no. 2 SE- (July 15, 2019): 107–114, <http://staitbiasjogja.ac.id/jurnal/index.php/saliha/article/view/33>.

<sup>40</sup> Priatmoko, "Memperkuat Eksistensi Pendidikan Islam Di Era 4.0."

<sup>41</sup> Muhammad, "Era Industri 4.0: Tantangan Dan Peluang Perkembangan Pendidikan Kejuruan Indonesia."

<sup>42</sup> Helaluddin Helaluddin, "Peningkatan Kemampuan Literasi Teknologi Dalam Upaya Mengembangkan Inovasi Pendidikan Di Perguruan Tinggi," *PENDAIS* 1, no. 01 (2019): 44–55.

<sup>43</sup> Indah Kurnianingsih, Rosini Rosini, and Nita Ismayati, "Upaya Peningkatan Kemampuan Literasi Digital Bagi Tenaga Perpustakaan Sekolah Dan Guru Di Wilayah

characteristics of digital literacy not only apply to organizational skills and the use of various information technology and communication technology tools (hardware and software platforms) but have become new expertise in the process of "reading" and "understanding" the nature of technical technologies and processes "creating" and "writing."

#### 3.3.4. *The Concept of Integration and Interconnection of Islamic Education*

In Islamic studies, an integration-interconnection approach is required to overcome the dichotomy of history. Understanding Islam is not enough from a single point of view but requires a complex and comprehensive approach, that is, an integration-interconnection approach. Science and religion are interlinked objects. The philosophy is focused on ontology, epistemology, and axiology. Science and religion must be integrated because they are interrelated and complementary. One reason for integration is the loss of religiosity in science, so there is a need for dialogue between the two parties.<sup>44</sup>

The integration of this knowledge must continue to be pursued and developed in various Islamic educational institutions, ranging from elementary to tertiary levels, from madrasas to PTAI. Integration may depart from the reform of the curriculum to the learning process in the classroom by the teacher or lecturer. Inevitably, therefore, the reform of the curriculum would incorporate an integrated approach in all fields of science.

Learning in Islamic education often needs to assimilate methods and paradigms to integrated science, so that the learning process of teachers and lecturers is unaffected and does not isolate knowledge from theory. Islamic education is no longer merely normative but also scientific. Understanding the rise of learning in inclusive Islamic education will lead students to learn as a whole and make Islamic education part of their real-life needs.<sup>45, 46</sup> As a result, after leaving the Islamic educational institution, students will be able to prepare their minds and skills to compete with others in the real world.

According to the author's analysis, these four concepts represent a strategic step towards maintaining the existence of Islamic education in the era of the Industrial Revolution 4.0 due to technological developments and automation in all sectors of life. Islamic education, as an educational institution that is distinguished by Islamic characteristics and seeks to improve the ability of the Muslim Ummah, must be fast and sensitive to take a stand or strategic step to improve the ability or abilities of the Ummah, so that they are ready and able to compete with the Ummah, the others at both national and international level.

The concepts or steps offered by the author are the results of joint analysis and discussion based on several theories described by a number of other Islamic education figures. This paper, therefore, confirms and accomplishes previous theories by putting together, contributing or conceptualizing the strategic steps

---

Jakarta Pusat Melalui Pelatihan Literasi Informasi," *Jurnal Pengabdian Kepada Masyarakat* 3, no. 1 (2017): 61–76.

<sup>44</sup> Eka Saftri and Ihsan Sa'dudin, "Aplikasi Integrasi Interkoneksi Keilmuan Di Lembaga Pendidikan Tinggi," *Tadrib* 5, no. 1 (2019): 122–137; Rijal, Akh Syaiful. "Urgensi Pendidikan Integratif-Nondikotomik di Perguruan Tinggi Islam." *TADRIS: Jurnal Pendidikan Islam* 11.1 (2016): 65-88.

<sup>45</sup> Pewangi, "Tantangan Pendidikan Islam Di Era Globalisasi."

<sup>46</sup> Muslih Hidayat, "Pendekatan Integratif-Interkonektif: Tinjauan Paradigmatik Dan Implementatif Dalam Pembelajaran Pendidikan Agama Islam," *Ta'dib: Jurnal Pendidikan Islam* 19, no. 02 (2014): 276–290.

that will be taken by Islamic education to demonstrate its presence in the age of the Industrial Revolution 4.0.

#### 4. Conclusion

Industrial Revolution 4.0 has a significant impact in all sectors of human life such as artificial intelligence, digital commerce (e-commerce), giant data, financial technology, sharing economics, to the use of robots. Industrial Revolution 4.0 cannot be prevented by any nation in the world and in any direction, including the potential growth of Islamic education. Islamic education in the Industrial Revolution 4.0 era must be able to shape a skilled and knowledgeable generation of Muslims in order to succeed in this global era. Accordingly, according to researchers, there are a number of strategies that Islamic education can pursue to maintain its existence, including: a) designing innovative Islamic education, b) reform and renewal of Islamic education, c) improvement in technology and literacy, and d) the concept of integration and interconnection of Islamic education. With these four issues, it is expected that the presence of Islamic education will maintain and continue to thrive in the era of the Industrial Revolution 4.0.

#### References

- Abdullah, Farid. "Fenomena Digital Era Revolusi Industri 4.0." *Jurnal Dimensi DKV Seni Rupa dan Desain* 4, no. 1 (2019): 47–58.
- Alfinnas, Shulhan. "Arah Baru Pendidikan Islam Di Era Digital." *Fikrotuna* 7, no. 1 (2018): 803–817.
- Arifim, H M, and Fauzan Asy. *Ilmu Pendidikan Islam: Tinjauan Teoretis Dan Praktis Berdasarkan Pendekatan Interdisipliner*. Bumi Aksara, 2006.
- Artika, Febria Sri, Widya Syafitri, and Risdaneva Risdaneva. "Developing Life Skill Based English Instructional Material in Bilingual Pesantren." *Al-Ta lim Journal* 27, no. 3 (2020): 272–281.
- Assegaf, Abd Rachman. "Aliran Pemikiran Pendidikan Islam: Hadharah Keilmuan Tokoh Klasik Sampai Modern." *Jakarta: PT Raja Grafindo Persada* (2013).
- Azra, Azyumardi, and I Thaha. "Pendidikan Islam: Tradisi Dan Modernisasi Di Tengah Tantangan Milenium III . Jakarta." *Kencana Prenadamedia Group* (2012).
- Bungin, Burhan. "Metodologi Penelitian Kualitatif: Aktualisasi Metodologis Ke Arah Ragam Varian Kontemporer, PT Raja Grafindo Persada." *Jakarta. Hal* 25 (2008).
- Helaluddin, Helaluddin. "Peningkatan Kemampuan Literasi Teknologi Dalam Upaya Mengembangkan Inovasi Pendidikan Di Perguruan Tinggi." *PENDAIS* 1, no. 01 (2019): 44–55.
- Hidayat, Muslih. "Pendekatan Integratif-Interkonektif: Tinjauan Paradigmatik Dan Implementatif Dalam Pembelajaran Pendidikan Agama Islam." *Ta'dib: Jurnal Pendidikan Islam* 19, no. 02 (2014): 276–290.
- Ibda, Hamidulloh, and E Rahmadi. "Penguatan Literasi Baru Pada Guru Madrasah Ibtidaiyah Dalam Menjawab Tantangan Era Revolusi Industri 4.0." *JRTIE: Journal of Research and Thought of Islamic Education* 1, no. 1 (2018): 1–21.

- Imamuddin, M. "Students' Understanding of Mathematical Concepts Using Manipulative Learning Media in Elementary Schools." In *Journal of Physics: Conference Series*, 1471:12050. IOP Publishing, 2020.
- Imamuddin, M, Andryadi Andryadi, M Zaharuddin, Isnaniah Isnaniah, Weti Susanti, Rehani Rehani, Zulmuqim Zulmuqim, and Syafruddin Nurdin. "The Role of Women as Educators." *Nur El-Islam: Jurnal Pendidikan dan Sosial Keagamaan* 7, no. 2 (2020): 138–157.
- Imamuddin, M, Andryadi Andryadi, and Zulmuqim Zulmuqim. "Islamic Education In The Al-Qur'an and Sunnah (Study About the Meaning of Education and Implication for Educator)." *Jurnal Educative: Journal of Educational Studies* 5, no. 1 (2020): 70–83.
- Klaus, Krippendorff. "Analisis Isi Pengantar Teori Dan Metodologi." *Jakarta: PT. Raja Grafindo Persada* (1993).
- Kurnianingsih, Indah, Rosini Rosini, and Nita Ismayati. "Upaya Peningkatan Kemampuan Literasi Digital Bagi Tenaga Perpustakaan Sekolah Dan Guru Di Wilayah Jakarta Pusat Melalui Pelatihan Literasi Informasi." *Jurnal Pengabdian Kepada Masyarakat* 3, no. 1 (2017): 61–76.
- Lase, Delipiter. "Pendidikan Di Era Revolusi Industri 4.0." *SUNDERMANN: Jurnal Ilmiah Teologi, Pendidikan, Sains, Humaniora dan Kebudayaan* 12, no. 2 (2019): 28–43.
- Ma'arif, Syamsul. *Revitalisasi Pendidikan Islam*. Graha Ilmu, 2007.
- Mahmudah, Mahmudah. "Pengembangan Kreativitas Pendidikan Islam Di Indonesia (Telaah Urgensi Proses)." *Jurnal Kependidikan* 2, no. 1 (2014): 52–70.
- Muhammad, Yahya. "Era Industri 4.0: Tantangan Dan Peluang Perkembangan Pendidikan Kejuruan Indonesia" (2018).
- Nuryadin. "Strategi Pendidikan Islam Di Era Digital." *Fitrah: Jurnal Kajian Ilmu-ilmu Keislaman* 3, no. 1 (2017): 209–226.
- Pewangi, Mawardi. "Tantangan Pendidikan Islam Di Era Globalisasi." *TARBAWI: Jurnal Pendidikan Agama Islam* 1, no. 1 (2016): 1–11.
- Prasetyo, Hoedi, and Wahyudi Sutopo. "Industri 4.0: Telaah Klasifikasi Aspek Dan Arah Perkembangan Riset." *J@ ti Undip: Jurnal Teknik Industri* 13, no. 1 (2018): 17–26.
- Pratama, Irja Putra, and Zuhijra Zuhijra. "Reformasi Pendidikan Islam Di Indonesia." *Jurnal PAI Raden Fatah* 1, no. 2 (2019): 117–127.
- Priatmoko, Sigit. "Memperkuat Eksistensi Pendidikan Islam Di Era 4.0." *TA'LIM: Jurnal Studi Pendidikan Islam* 1, no. 2 (2018): 221–239.
- Rahmawati, Aida Dwi. "Pendidikan Islam Kreatif Era Industri 4.0 Perspektif Abuddin Nata." *Ta'allum: Jurnal Pendidikan Islam* 7 (2019): 1.
- Rijal, Akh Syaiful. "Urgensi Pendidikan Integratif-Nondikotomik di Perguruan Tinggi Islam." *TADRIS: Jurnal Pendidikan Islam* 11.1 (2016): 65-88.
- Rofiqi, Rofiqi. "Pendidikan Islam Di Era Industri 4.0 (Studi Analisis Terhadap Tantangan Profesionalisme Guru Pendidikan Agama Islam)." *FIKROTUNA* 10, no. 02 (2019): 1243–1257.
- Rohimah, Rt Bai. "Strategi Pendidikan Islam Menyongsong Generasi Revolusi

- 4.0.” In *Prosiding Seminar Nasional Pendidikan FKIP*, 2:715–722, 2019.
- Rohman, Miftahur, and Hairudin Hairudin. “Konsep Tujuan Pendidikan Islam Perspektif Nilai-Nilai Sosial-Kultural.” *Al-Tadzkiyyah: Jurnal Pendidikan Islam* 9, no. 1 (2018): 21–35.
- Rohman, Miftaku. “Konsep Pendidikan Islam Menurut Ibn Sina Dan Relevansinya Dengan Pendidikan Modern.” *Epistemé: Jurnal Pengembangan Ilmu Keislaman* 8, no. 2 (2013): 279–300.
- Saftri, Eka, and Ihsan Sa’dudin. “Aplikasi Integrasi Interkoneksi Keilmuan Di Lembaga Pendidikan Tinggi.” *Tadrib* 5, no. 1 (2019): 122–137.
- Siswanto, Siswanto, and Yuli Anisyah. “Revitalisasi Nilai-Nilai Qur’ani Dalam Pendidikan Islam Era Revolusi Industri 4.0.” *Islamuna: Jurnal Studi Islam* 5, no. 2 (2018): 139–146.
- Subhan, Fauti. “Konsep Pendidikan Islam Masa Kini.” *Jurnal Pendidikan Agama Islam (Journal of Islamic Education Studies)* 1, no. 2 (2013): 353–373.
- Suharsimi, Arikunto. “Manajemen Penelitian (Jakarta: Rineka Cipta,), 2010.” *Prosedur Penelitian Suatu Pendekatan Praktik* (1990).
- Suharto. “Pendidikan Islam Di Era Revolusi Industri 4.0.” *SALIHA: Jurnal Pendidikan & Agama Islam* 2, no. 2 SE- (July 15, 2019): 107–114. <http://staitbiasjogja.ac.id/jurnal/index.php/saliha/article/view/33>.
- Suwardana, Hendra. “Revolusi Industri 4. 0 Berbasis Revolusi Mental.” *JATI UNIK: Jurnal Ilmiah Teknik Dan Manajemen Industri* 1, no. 2 (2018): 109–118.
- Zed, Mestika. *Metode Peneletian Kepustakaan*. Yayasan Obor Indonesia, 2004.