

Education Development in Indonesia Towards a New Era of Society 5.0

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Abstract

The emergence of society 5.0 will help various fields in human life. But of course, this needs to be accompanied by a readiness to face this new era. Education in Indonesia itself is still in the 4.0 era, where the use of the internet to carry out online learning has been created. Therefore, to continue to improve the quality of education in Indonesia, it is necessary to have readiness for education in Indonesia in facing the era of society 5.0. This study will use a qualitative approach with data sources derived from previous research and studies. The study results found that education in Indonesia can develop in several ways, such as building infrastructure in the field of education, developing human resources (HR), synchronizing education with the required industry, and using appropriate technology.

Keywords: Education, Society 5.0, Industry 4.0, Technology.

A. INTRODUCTION

The Japanese government coined the term "Society 5.0." Society 5.0 is a concept that is confined to manufacturing factors and addresses social issues through the merging of physical and virtual places (Gladden, 2019). Society 5.0 is based on the concept of big data technology obtained via the Internet of Things (IoT) being transformed into something that may assist people in improving their lives through the use of Artificial Intelligence (AI) (Aquilani et al., 2020). Society 5.0 will have a profound effect on every facet of life, including health, urban planning, transportation, agriculture, industry, and education (Mavrodieva & Shaw, 2020).

Currently, education in Indonesia is entering the 4.0 era. The current trend of Indonesian education is online learning that uses the internet as a liaison between teachers and students (Sudarmo et al., 2021). The development of technology seems to be a business opportunity in the field of education by establishing online-based tutoring (Benson et al., 2011). In addition, technological developments have also changed the order of education in Indonesia, for example:

1. Since 2013 the national exam system has changed from a paper-based test to an online-based test (Al-Qdah & Ababneh, 2017).
2. The admission system for new student admissions from elementary school to university level in Indonesia has been carried out online, from registration to admissions announcement (Rasinan et al., 2021).

The role of teachers or instructors in the Industrial Revolution 4.0 era must be watched out for; educators should focus on their duties only in the transfer of knowledge and emphasize

character, morals, and exemplary education (Vos, 2018). This is because the transfer of knowledge can be replaced by technology. However, the application of soft skills and hard skills cannot be replaced with any sophisticated tools and technology (Hsu, 2018). With the birth of society 5.0, it is expected to create technology in the field of education that does not change the role of teachers or instructors in teaching moral education and is exemplary for students (Hermanto & Srimulyani, 2021).

Through the explanation above, the researcher intends to research how the education readiness of the Indonesian state in facing the Society 5.0 era.

B. LITERATURE REVIEW

1. Education

Socrates and Plato have been looking for a definition of education since time immemorial. There are many different definitions of the meaning of education (Digdowiseiso, 2020). Although many definitions exist, Matheson and Wells argue that there will not be a satisfactory definition of the meaning of complete education (Archer et al., 2020). According to Gregory, education is a person's effort in trying to understand the meaning of social, physical, and cultural by using his brain and mind (Gregor et al., 2018). Another opinion from Peter regarding education is an implication effort when humans try to transmit something that can be considered beneficial or not in vain (Amorin-Woods et al., 2020).

It is difficult to define education because the meaning can change depending on the context, so the meaning of education is constantly changing and uncertain (Caena & Redecker, 2019). Some experts argue that school can be interpreted as education. In contrast, other experts argue that teaching and learning activities can occur anywhere and anytime, so this does not require education (Sharon & Baram-Tsabari, 2020).

These differences then raise new questions, whether the product of learning outcomes is the original form of education or whether the processes that occur during education are the essential part of education itself (Supena et al., 2021). The emergence of this question shows that consensus on the definition of education still does not exist among experts. Apart from the difficulty of defining the meaning of education, the criteria in education are also still undergoing debate (Koehler et al., 2021).

Wittgenstein then provides a good start for understanding the meaning of education. Wittgenstein argues that each context can give different meanings to the same word (Newman, 2020). Often a term has a lot of different purposes, but at least the term still has the same function in every different context (Arrieta et al., 2020).

The approach derived from Wittgenstein can provide an understanding of education, which depends on the context in which it will be used. Therefore, it allows us to define a term that can have multiple meanings (Coeckelbergh, 2018).

2. Society 5.0

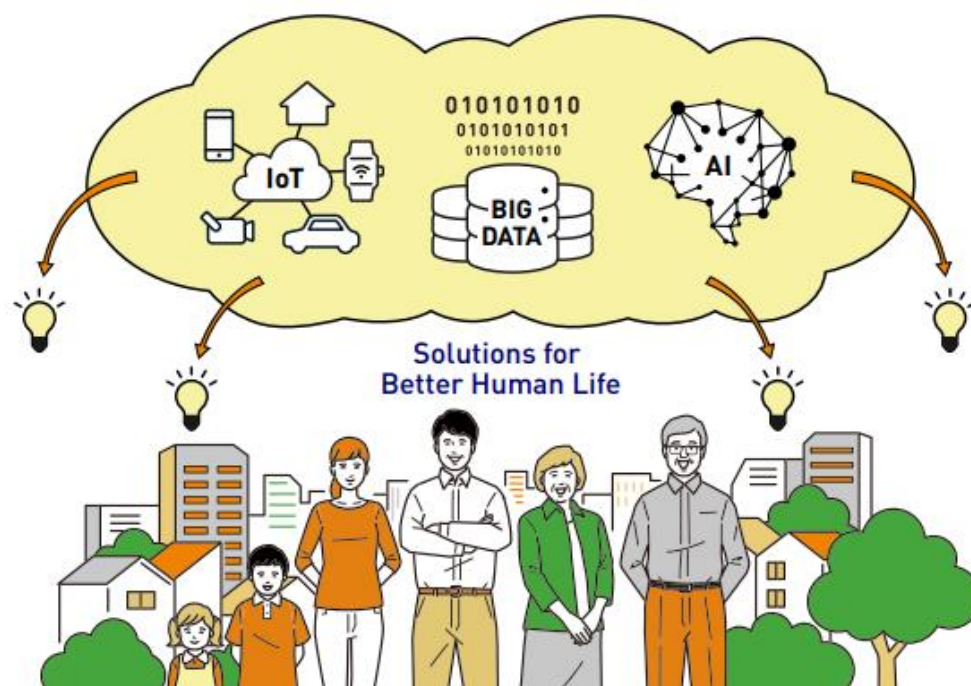
Society 5.0 can be interpreted as a human-centered and technology-based society concept. The Japanese government will apply examples of applications with the idea of this new civilization (Bagci, 2021).

Society 5.0 is a Japanese concept for a human-centered, technology-driven society. This concept grew out of the industrial revolution 4.0, which is widely believed to have the potential to diminish human responsibilities (Ismaya et al., 2021). Through Society 5.0, artificial intelligence (AI) will transform massive amounts of data acquired over the internet in all spheres of life (the Internet of Things) into a pearl of fresh wisdom committed to enhancing human capabilities and expanding human prospects. This evolution will enable humanity to lead more meaningful lives (Hou et al., 2020).

Society 5.0 will transform millions of data points received over the internet in all spheres of life through artificial intelligence that is human-centric. Naturally, one hopes it will become a pearl of new insight in the social order (Fukuda, 2020). Without a doubt, this transition will assist humanity in living more meaningful lives. In Society 5.0, the imperative to strike a balance between economic advancement and social progress (van Niekerk, 2020).

According to an article titled "Society 5.0: Aiming for a Human-Centered Society" written by Mayumi Fukuyama (general manager and chief information officer of the Technology Management Center, Technology Strategy Office, and Research & Development Group, Hitachi, Ltd.), the goals set for this 5.0 society are to strike a balance between economic growth and resolving societal problems (Zizek et al., 2021). However, the question arises as to whether all of this will result in an active role for Indonesian human resources. In other words, is the road map capable of containing the rate of unemployment?

The ultimate goal of this new civilization is to build a community in which people can live their lives fully. That approach has been taken in terms of technological advancement and economic prosperity (Lee et al., 2018). The gap is closing as the community's overall quality of life improves, so it is no longer enjoyed by a select few. Even if the road map originates in Japan, this notion will surely help humanity overcome the industrial revolution's challenges. 4.0 (Macke et al., 2018).



Picture 1. Illustration Society 5.0

C. METHOD

This research will use a qualitative approach as the method. The data to be used is sourced from various studies and previous studies that are still related to education in Indonesia in the industrial era 4.0 and society 5.0. The data that is successfully collected will then be analyzed to reach the conclusions you want to get.

D. RESULT AND DISCUSSION

1. Indonesian Education in the Industrial Revolution 4.0

The industrial revolution era 4.0 is an era in which information technology is advancing at a breakneck pace and pervading every aspect of human life. The industrial revolution 4.0 period was defined by the emergence of the internet of things, which has permeated several spheres of human life today. One of them is in the field of education. Therefore, several efforts need to be made: 1) curriculum revitalization, 2) appropriate use of information technology.

According to Muhadjir Effendy, now that the industrial revolution 4.0 has reached the field of education, it is vital to enhance the curriculum by boosting student competence, which includes the following:

- a. Critical thinking
- b. Creativity and innovation
- c. Interpersonal skill and communication
- d. Teamwork and collaboration
- e. Confident

Along with technological advancements, teaching and learning in the industrial revolution 4.0 age are also undergoing changes. The internet and computers are instruments that will aid in the process of teaching and learning. Previously, learning took place face to face between teachers and students; now, in the industrial revolution 4.0 age, learning can take place online via social media or other media that promote the online learning process.

The presence of the internet and the speed of search engines gave birth to the digital literacy movement. Searching for theories, concepts, practices, and any type of knowledge via the internet becomes very easy and very fast. Along with the speed of accessing data and the internet, the Indonesian government starting in 2017, launched three types of literacy (one of which is digital literacy) in the face of the industrial revolution 4.0. The concept of digital literacy relies not only on “reading” but also on increasing the ability to analyze and use digital information obtained for the proper purposes, avoiding hoaxes, etc.

In terms of learning in the era of industrial revolution 4.0, educators can apply a hybrid/blended learning model. Blended learning is a method that combines face-to-face learning in the classroom with online learning. An example of blended learning is using a learning management system in a college or school. The learning management system can simplify the learning process because this system runs online, so students and teachers do not need to meet face-to-face directly. They can conduct online discussions, online exams, and students can download materials online on the system. This system can be accessed anywhere and anytime.

Students are expected to think critically in the industrial revolution 4.0 age. Thus, case-based learning or case-based instruction is a technique that can be used during the learning process. Case-based learning is a method of instruction that focuses on students' ability to analyze a situation and provide solutions for the case. The solution to the case must be applicable to everyday life. Case-based learning tries to acclimate pupils to correctly resolving real-world challenges.

A learning process cannot be divorced from the role of the teacher, which is why, in the industrial revolution 4.0 era, teachers must possess a range of core competencies, including educational competence, research competence, digital competence, global competence, and future strategy competence.

The challenges in the world of education for teachers in the era of the industrial revolution 4.0 are teachers' readiness in access and mastery of technology, the low level of media literacy among teachers, only some teachers have access to information technology. The challenge for students is the number of students who are still too many, causing difficulties in the learning process and access to information technology that is still not evenly distributed.

For this reason, the role of the government's inequitable development and equitable distribution of educational facilities in the territory of Indonesia must be prioritized so that later when implementing internet and technology-based learning, it can be evenly distributed throughout Indonesia.

2. The Urgency of Society 5.0

Society 5.0 is a notion for a new social order. The objective of society 5.0 is to make people's lives more comfortable and sustainable. The public will receive products and services in the quantities and at the times required. Society 5.0 can be interpreted as a concept for a human-centered and technologically advanced society.

In the era of society 5.0, people are faced with technology that allows access to virtual space that feels like physical space. In society 5.0, AI technology is based on big data and robots to do or support human work. In contrast to the 4.0 industrial revolution, which emphasizes business only, but with society 5.0 era technology creates a new value that will eliminate social, age, gender, language gaps and provide products and services specifically designed for various individual needs and the needs of many people.

The basic principle in society 5.0 is a balance in business and economic development with the social environment. With technology in the era of society 5.0, the problems created in the industrial revolution 4.0 (reduced socialization between communities, employment, and other industrialization impacts) will be reduced. To be well integrated, the use of technology is a tool to enhance personal and business life and be able to make life popular among people.

An example of society 5.0 in the social field is the use of AI to analyze big data from various information such as artificial satellites, ground weather radar, observation of disaster areas with drones, damage information from building sensors, and damage information from building sensors.

In the field of education in the era of society 5.0, it is possible for students or students in the learning process to directly deal with robots that are specifically designed to replace educators or are controlled by educators remotely. It is not impossible that the teaching and learning process can occur anywhere and anytime, whether there is a teacher or not.

3. Efforts Needed to Be Done by the State of Indonesia to Face the Era of Society 5.0 in the Field Of Education

Indonesia, still reeling from the 4.0 industrial revolution's frenzy, was taken aback by a new concept, namely society 5.0. The 4Cs, or creativity, critical thinking, communication, and cooperation, are currently the center of expertise in the subject of 21st-century education.

Leadership, digital literacy, communication, emotional intelligence, entrepreneurship, global citizenship, problem-solving, and teamwork are just a few of the 21st-century skills necessary. Is our educational system equipped to deal with the challenges of society 5.0? There are several ways in which the world of education in Indonesia can prepare for society 5.0. The first is through infrastructure development; the government must work to increase development distribution and internet connectivity throughout the country, as we all know that not all areas currently have access to the internet.

Second, in terms of human resources, those who serve as teachers must possess digital literacy and the ability to think creatively. According to Zulkifar Alimuddin, Director of Hafecs (Highly

Functioning Education Consulting Services), instructors must be more imaginative and active in the classroom during the era of society 5.0 (society 5.0).

Thirdly, the government must be able to coordinate education and industry so that graduates from colleges and schools can work in their disciplines and according to the standards required by industry, thereby reducing Indonesian unemployment. Fourthly, include technology into teaching and learning activities.

The Minister of Research, Technology and Higher Education (Menristek Dikti), Muhammad Nasir, explained four universities must pay attention to produce qualified and competent graduates.

To begin, competency-based education is one of higher education's key responsibilities in the modern day. Each student possesses unique talents and abilities; so, an information technology strategy is required to assist students in selecting the most appropriate study program for their abilities.

Second, the Internet of Things (IoT) in education. The Internet of Things' existence may facilitate communication between lecturers and students during the teaching and learning process.

Three, the educational application of virtual/augmented reality. Students can use augmented reality to better learn theories that require specialized simulations based on actual conditions. The 3D technology used in augmented reality provides the wearer with the sensation of digital simulations that are identical to actual physical actions, for example, in an airplane simulation used by aviation students to pass the test before practicing flying directly with the actual aircraft.

Fourthly, the application of Artificial Intelligence (AI) in education to detect and prioritize students' learning needs. With machine learning technology built in artificial intelligence, identifying student needs will be faster. The more digital data collected, the more intelligent the artificial intelligence system, for example, Google Assistant, Siri, etc. With these technologies, students are presented with the ease and speed of data retrieval, and even the technology can recommend data that they had not thought of before. Artificial intelligence presents raw data and data that has been processed into very informative data tailored to the needs of its users.

The use of the three technologies above, namely artificial intelligence, IoT, and augmented reality, is expected to create qualified and competent graduates who are ready to use them in the industrial world.

E. CONCLUSION

The era to watch out for from now on is the era of society 5.0. Education in Indonesia in welcoming this era is by first looking at the existing infrastructure in Indonesia, developing human resources, synchronizing education and industry, and using technology as a tool for teaching and learning activities. There are four things that make universities produce quality

graduates: competency-based education, the use of IoT (Internet of Things), the use of virtual or augmented reality, and the last is the use of AI (Artificial Intelligence).

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