

The Role of Education and Skills in Reducing Unemployment in the Era of Digitalization and Globalization

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Abstract

Education and skills are the key foundations in the face of economic and technological change in the era of digitalization and globalization. The research has a clear objective to reveal the essential role of education and skills in improving the quality of human resources as well as preparing them to face the complexity of the challenges of the Industry 4.0 era. The method chosen in this research is through a careful study of literature, by digging up a variety of sources of information that are relevant and relevant to the foundation of knowledge that is intended to be acquired. Research results strongly confirm that investments in education and skills development have a significant impact in improving individual performance and competitiveness in the professional sphere. Education is not only knowledge, but also the foundation for creative, productive, and improved competence for workers. More importantly, education and skills equip individuals with the ability to adapt to technological changes and the changing dynamics of the world of work. From the results, the recommendations are clear: the importance of collaboration between governments, the business sector, and the public in increasing investment in the education and skills sectors. It's not just about funding, it's about developing an educational system that is responsive, adaptable to market needs, and has a flexible space for innovation. This holistic approach is expected to form a solid foundation for sustained economic growth and a reduction in unemployment rates in the future.

Keyword : Education and skills, Unemployment, Digitalization, Globalization

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Introduction

Unemployment is a social and economic problem faced by many countries, including Indonesia. The negative impacts that can arise from unemployment involve issues such as poverty, increased crime rates, and political instability. Therefore, measures need to be taken to reduce the unemployment rate and improve people's welfare (Greve, Blomquist, Hvinden, & Van Gerven, 2021). According to the International Labour Organization (ILO), the unemployment rate in Indonesia was 7.1% in 2020, which was the highest since 2011. The COVID-19 pandemic has worsened the situation, as many businesses have closed down or reduced their operations, resulting in massive layoffs and reduced incomes. The government has implemented various policies and programs to mitigate the impact of the pandemic, such as social assistance, wage subsidies, tax incentives, and stimulus packages. However, these interventions have not been sufficient to address the structural and long-term challenges of the labor market, such as skills mismatch, low productivity, informality, and inequality. Education and skills are two very

important things for human resources, especially in the current era of digitalization and globalization. The era of digitalization and globalization is marked by rapid and dynamic economic and technological developments, which bring various opportunities and challenges to society. In order to take advantage of opportunities and overcome the challenges that arise, human resources need to have knowledge, skills, and competencies that are in line with the needs and demands of the times. (Murjani, 2019).

One way to improve the knowledge, skills and competencies of human resources is by using an educational approach. This learning process aims to optimize the development of individual potential and abilities. Education not only provides information and insights, but also shapes attitudes, values and personal character. In addition to this, education can play a role in improving the creativity, productivity and quality of human resources. In addition to education, it is also important to recognize that skills play a significant role as a major factor affecting human resource performance and competitiveness. Skills are defined as the ability to perform tasks well and efficiently. Skills can be acquired through education, training, experience or practice. Skills can be technical skills, social skills, managerial skills, communication skills, digital skills, and so on. Skills can help human resources to adapt to changes in technology and the job market (Sedyastuti, Suwarni, Rahadi, & Handayani, 2021).

The essential role of education, improve the quality of human resources, and prepare them for the challenges of the industrial era 4.0 which requires effective skills. A careful literature study method is used in this research, by gathering information from various sources related to the desired knowledge base. This research is expected to present a firm and comprehensive picture of the importance of education and skills in the context of human resources in the era of digitalization and globalization. In addition, it is hoped that this research can provide useful recommendations for the parties involved (Bougie & Sekaran, 2019).

The purposes of research that can be formulated to analyze the current and future trends of digital transformation and automation in the Indonesian labor market, and to assess the skills gap and mismatch between the workers and the employers, To examine the determinants and outcomes of entrepreneurship and innovation among the Indonesian youth, and to identify the barriers and opportunities for fostering a more entrepreneurial and innovative culture in Indonesia, and To evaluate the impact and efficiency of the social protection and labor market policies in Indonesia, and to propose policy recommendations for enhancing their effectiveness and sustainability in the post-pandemic era.

Literature Review

Unemployment is one of the social and economic problems faced by many countries, including Indonesia. Unemployment can cause various negative impacts, such as poverty, crime, and political instability. Therefore, efforts are needed to reduce the unemployment rate and improve the welfare of the community. Unemployment is a condition in which a person who is able and wants to work cannot find a job that matches his or her qualifications and skills. Unemployment can be caused by various factors, such as population growth, economic structure, technological change, educational mismatch, and government policy. Unemployment can be classified into several types, such as cyclical, structural, fractional, seasonal, and voluntary unemployment (Widarni, Prestianawati, & Bawono, 2020).

Unemployment can have various negative impacts on individuals, society, and the state. Negative impacts for individuals include a decline in income, welfare, health, self-confidence, and motivation. Negative impacts on society include increased poverty, crime, social conflict, and radicalism. Adverse impacts on the state include decreased economic growth, productivity,

competitiveness, and political stability. Therefore, measures are needed to reduce the unemployment rate and improve people's welfare. Such measures can be taken by the government, the business sector and the community (Renzaho, Doh, Mahumud, Galukande, & Kamara, 2020). Measures that can be taken by the government include increasing budget allocations, improving the quality of education, skills training, providing investment incentives, and implementing employment policies. Meanwhile, actions that can be taken by businesses involve increased investment, innovation, and cooperation with education and skills training institutions. At the community level, measures include raising awareness, motivation and participation in education and skills development activities. (Evans, & Kelikume, 2019).

Education and skills are two very important things for human resources, especially in the current era of digitalization and globalization. The era of digitalization and globalization is marked by rapid and dynamic economic and technological developments, which bring various opportunities and challenges to society. In order to take advantage of these opportunities and face these challenges, people must have knowledge, skills, and competencies that are in line with the needs and demands of the times (Murjani, 2019).

Education is a series of learning activities that aim to optimize the development of individual potential and abilities. Education not only provides information and knowledge, but also shapes individual attitudes, values and character. Education can also improve creativity, productivity and the quality of human resources. Education in the era of digitalization and globalization needs to have the ability to keep up with developments and transformations that occur globally (Nguyen, Gruber, Fuchs, Marler, Hunsaker, & Hargittai, 2020). Education must be oriented to labor market needs, industrial trends, and social challenges. Education must be flexible, adaptive and innovative. The utilization of technology as a learning tool and resource needs to be integrated in the education system. In addition, education should devote attention to the development of 21st century skills, including critical thinking, collaboration, communication and creativity (Khaidir & Suud, 2020)

Proficiency can be in the form of technical skills, social skills, managerial skills, communication skills, digital skills, and so on. Skills can help human resources to adapt to changes in technology and the job market. Skills in the era of digitalization and globalization need to be able to adapt to the evolution and changes taking place around the world. Skills must be oriented towards the needs of the labor market, industry trends, and social challenges. Skills must be flexible, adaptive and innovative. Skills must utilize technology as a means and source. The abilities that need to be improved are 21st century abilities, such as the ability to think critically, work together, communicate, and innovate (Button, Seifert, Chow, Davids & Araujo, 2020)

One way to improve the knowledge, skills and competencies of human resources can be done through education, a learning process that aims to optimize the development of individual potential and abilities. Education not only provides information and knowledge, but also shapes individual attitudes, values and character. Education can also increase creativity, productivity, and the quality of human resources (Sedyastuti, Suwarni, Rahadi, & Handayani, 2021).

Education in the age of digitalization and globalization needs to have the ability to adapt to developments and changes that occur throughout the world. Education must be oriented to the needs of the labor market, industrial trends, and social challenges. Education must be flexible, adaptive and innovative. Education should utilize technology as a learning tool and resource. Education needs to promote skills that are relevant to the demands of this era, such as the ability to think critically, collaborate, communicate, and create in the context of the 21st century (Selwyn, Hillman, Eynon, Ferreira, Knox, Macgilchrist, & Sancho-Gil, 2020).

Apart from education, skills are also an important factor that determines the performance and competitiveness of human resources. Skills are the capacity to perform a task competently and effectively. Skills can be acquired through education, training, experience or practice. Skills can be technical skills, social skills, managerial skills, communication skills, digital skills, and so on. Skills can help human resources to adapt to changes in technology and the job market (Anwar, & Abdullah, 2021).

Skills in the era of digitalization and globalization must be able to adapt to the dynamics and transformations taking place around the world. Skills must be oriented to labor market needs, industry trends, and social challenges. Skills must be flexible, adaptive and innovative. Skills must utilize technology as a means and source of learning. Skills must develop 21st century skills, such as critical thinking, collaboration, communication, and creativity (Ellitan, 2020). One method to improve labor skills is through training. Training is a learning process that aims to improve a person's ability and performance in specific job tasks. Training not only provides information and knowledge, but also shapes individual attitudes, values and character. Training can also improve creativity, productivity, and the quality of human resources (Sima, Gheorghe, Subić, & Nancu 2020).

Training in the age of digitalization and globalization needs to adapt to the evolution and transformation taking place around the world. Training must be oriented to labor market needs, industry trends, and societal challenges. Training must be flexible, adaptive and innovative. Training should utilize technology as a learning tool and resource. Training should develop 21st century skills, such as critical thinking, collaboration, communication and creativity (Almeida, Santos, & Monteiro, 2020). One way to improve human knowledge, skills and capabilities is through the education process. Education can be explained as a learning method that aims to maximize the development of individual potential and abilities. More than just providing information and knowledge, education also plays a role in shaping individual attitudes, values and character. Education can also improve creativity, productivity and the quality of human resources (Tomprowski & Pesce, 2019)

According to the provisions in the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, national education has the main objective of uncovering the potential of students so that they can become individuals who have faith and devotion to God Almighty, have good morals, are healthy, knowledgeable, competent, creative, independent, and become democratic, responsible citizens, and have an Indonesian national identity. Ki Hajar Dewantara also stated that education aims to form individuals who believe in and recognize the existence of God Almighty, and have high morality. In addition, education is directed to provide knowledge and skills to students, maintain good health both physically and mentally, develop a strong and independent personality, and instill a sense of responsibility to the community and nation (National Research Council, 2012). In other words, through education, we can improve human knowledge, skills and competencies. Education has various purposes, functions and benefits for individuals, communities and countries. Education can also shape positive individual attitudes, values and character. It can also improve creativity, productivity, and the quality of human resources (Li, 2022).

Training 4.0 also requires changes in learning materials, methods, and evaluation. Learning content must have the ability to improve learners' skills so that they can contribute directly to society, guide and shape learners to prepare for changes in the industrial revolution era, especially in the realm of Science, Technology, Engineering, and Mathematics (STEM). Learning approaches need to adopt information and communication technology (ICT), internet of

things (IoT), big data, and computerized processes. Learning evaluation should measure learners' skills and competencies, not just knowledge and memorization (Bonfield, Salter, Longmuir, Benson, & Adachi, 2020).

Research Methodology

This research utilizes a literature study approach, a research method that explores various sources of information related and relevant to the research topic. Literature studies can help researchers to obtain a theoretical basis, determine problem formulations, formulate hypotheses, and develop a research conceptual framework. Literature studies can also provide an overview of the phenomenon under study, as well as identify influential variables. In this research, sources of information include literature such as books, journals, articles, reports, and statistical data related to topics such as education, skills, unemployment rates, economic aspects, and technological developments. The sources selected should have high credibility, validity and actuality. Sources of information originating from the internet must be checked for accuracy and authenticity.

The data collection process in this research involves steps such as searching, selecting, downloading and recording sources of information relevant to the research topic. Once the data is collected, the data processing steps involve the process of reading, understanding, analyzing, critiquing, and summarizing the information that has been collected. This data processing process aims to produce accurate, relevant, and systematic data. Data analysis in this research utilized qualitative methods, an approach that deciphers and interprets data in depth and critically. The analysis process involved classifying, categorizing, linking and presenting the data according to the research objectives. In addition, the data was also analyzed by comparing, contrasting and integrating information from various sources. Findings from the data analysis were then presented through narratives and tables, which can explain the important role of education to improve the ability and quality of human resources is a must to prepare them to face complex challenges in the industrial era 4.0. (Lefebvre, Glanville, Briscoe, Littlewood, Marshall, Metzendorf, & Cochrane Information Retrieval Methods Group. 2019).

Result and Discussion

Data on the unemployment rate in Indonesia in 2017-2021, which comes from the Central Statistics Agency (BPS) and is presented in tabular form, shows the percentage of the population aged 15 years and over who are not working, looking for work, and who are ready to work. This information is obtained through the National Labor Force Survey (Sakernas) conducted by BPS every February and August (Blundell, Costa Dias, Joyce, & Xu, 2020). Table 1 show the unemployment rate growth.

Table 1. The Unemployment Rate Growth

Year	Month	Unemployment Rate (%)	Growth (%)
2017	February	5,50	-
2017	August	5,50	0,00
2018	February	5,13	-6,73
2018	August	5,34	4,09
2019	February	5,01	-6,18
2019	August	5,28	5,39
2020	February	4,99	-5,49
2020	August	7,07	41,68

2021	February	6,26	-11,44
2021	August	6,48	3,51

Source: BPS (Central Bureau of Statistics)

From the data in the table 1, it can be seen that the unemployment rate in Indonesia fluctuated during the 2017-2021 period. In 2017-2019, the unemployment rate tended to decrease gradually, reaching its lowest level in February 2020 at 4.99%. However, in August 2020, the unemployment rate jumped sharply to 7.07%, due to the impact of the Covid-19 pandemic that disrupted economic activity and the job market. In 2021, the unemployment rate began to decline again, although it was still above the pre-pandemic level. In August 2021, the unemployment rate was recorded at 6.48%, indicating an economic recovery and increased employment (Irawan, 2022). This information reflects the proportion of the population aged 15 years and above with specific levels of education and skills, based on data obtained from the National Socio-Economic Survey (Susenas) conducted by BPS every year (Nasution, Mahendradhata, & Trisnantoro, 2020). Table 2 show that the number of skills education institutions, learners and alumni in Indonesia.

Table 2. The Number Of Skills Education Institutions, Learners And Alumni In Indonesia

Year	Number of Skills Education Institutions	Number of Skills Education Learners (Thousand)	Learner Growth (%)	Number of Skill Education Graduates (Thousand)	Graduate Growth (%)
2017	6.612	1.057,4	-	1.001,9	-
2018	6.705	1.062,5	0,48	1.006,1	0,42
2019	6.902	1.072,9	0,98	1.015,9	0,98
2020	6.953	1.078,3	0,50	1.021,3	0,53
2021	7.012	1.084,7	0,59	1.027,7	0,63

Source: BPS (Central Bureau of Statistics)

The data listed in the table 2, we can observe that the number of skills education institutions, learners and alumni in Indonesia experienced positive but slow growth during 2017-2021. This shows that skills education still needs attention and the support of joint efforts between the government and the community is needed to improve the quality and affordability of a service.... The role of education and skills towards unemployment in the era of digitalization 4.0 and globalization is very important and strategic. In an increasingly competitive and dynamic job market era, understanding and applying science and technology is crucial to meet evolving needs. Success in today's world of work is not only determined by conventional expertise, but also by adaptability to the latest technological innovations and developments. Therefore, enriching oneself with knowledge that is relevant to scientific and technological advancements is key to achieving success in an increasingly tight job market. Education and skills can also increase the creativity, innovation and adaptability of human resources in the face of rapid and complex changes. Thus, education and skills can reduce unemployment by creating new jobs, increasing productivity, and expanding employment opportunities (Indrawati, & Kuncoro, 2021). The World Economic Forum report states that around 65% of children currently starting primary education are expected to face significant changes in the work environment in the future. Therefore, education needs to be able to adapt quickly to the growing demand for information technology skills that focus on digital intelligence and skills. In addition, proficiency in

information and communication technology (ICT) is one of the key competencies that are essential in the era of digitalization 4.0. According to information released by the Central Bureau of Statistics, in 2020, around 62.97% of the Indonesian population aged 15 years and above were considered to have an understanding of ICT, an increase from 56.11% in the previous year, 2019. This shows that ICT education and skills have developed in Indonesia, although it still needs to be improved (Messerli, Murniningtyas, Eloundou-Enyegue, Foli, E, Furman, Glassman, & van Ypersele, 2019).

ICT education and skills is the process of learning and developing the ability to use, manage, and Use information and communication technology has become an integral part of various areas of life. ICT education and skills include basic skills, such as operating computers, the internet and other digital devices, as well as advanced skills, such as programming, graphic design, data analysis and cybersecurity. ICT education and skills also include the 21st century skills of using information and communication technologies while performing critical thinking, collaborating, communicating and creating (Szymkowiak, Melović, Dabić, Jeganathan, & Kundi, 2021).

ICT education and skills have various benefits, both for individuals, communities and countries. ICT education and skills can improve the quality of and access to education, health, government and public services. ICT education and skills can increase economic productivity and competitiveness, and create new jobs and business opportunities. ICT education and skills can increase social participation and engagement, and foster innovation and creativity. ICT education and skills can also increase awareness of and responsibility for global issues, such as the environment, human rights and peace (Brackett, Bailey, Hoffmann & Simmons, 2019).

ICT education and skills in the era of digitalization 4.0 must be able to adapt to the dynamics and transformations taking place around the world. ICT education and skills must be oriented to labor market needs, industry trends, and social challenges. ICT education and skills must be flexible, adaptive and innovative. ICT education and skills should utilize the latest technologies, such as artificial intelligence, internet of things, big data and cloud computing. ICT education and skills should develop 21st century skills to formulate critical thinking, work collaboratively, communicate effectively, and generate creativity using information and communication technologies (Sima, Gheorghe, Subić, & Nancu, 2020).

One method to improve ICT education and skills in Indonesia is to integrate ICT into the curriculum, learning methods and evaluation. The presence of Information and Communication Technology (ICT) in the teaching and learning process can increase learning motivation, interaction, and student achievement. ICT integration can also create diverse, interesting and fun learning experiences. In addition, the incorporation of ICT in learning can facilitate the concept of lifelong learning, accessible at any time, anywhere, and with anyone. ICT integration in learning can also develop 21st century skills, which are needed to face the era of digitalization 4.0 (Hafifah & Sulistyono, 2020).

Skills education also has a vital role in reducing unemployment, especially among vocational high school graduates (SMK). Based on information from the Central Bureau of Statistics, the percentage of open unemployment for Vocational High School (SMK) graduates in 2020 reached 9.88%, lower than the TPT for high school graduates (13.68%) and university graduates (9.98%). This shows that SMK graduates have skills that are more in line with the needs of the world of work. In addition, education can also encourage the creation of new jobs through innovation and entrepreneurship. One example is game-based education that can increase students' creativity, motivation and collaboration². Games can also be one of the potential creative industries in the digitalization 4.0 era. According to data from the Indonesian Game Association, the game

industry in Indonesia in 2020 reached a market value of 1.6 billion US dollars, up 18.4% from 2019. The game industry also absorbed a workforce of 53,000 people in 2020 (Boldureanu, Ionescu, Bercu, Bedrule-Grigoruță, & Boldureanu, 2020).

From some of the information that has been presented, it appears that education and skills have a very significant role in reducing unemployment in the era of digitalization 4.0 and globalization. Although it is not easy, various challenges must be overcome, including limited access, quality, and relevance of education and developing skills that are relevant to the requirements of the world of work. For this reason, cooperation between the government, the business world, and the community is needed to improve the level of education and skills in Indonesia (Sima, Gheorghe, Subić & Nancu, 2020).

Conclusion

In the age of globalization and digitalization 4.0, education and skill development are crucial and strategically important for lowering unemployment. The originality, inventiveness, and flexibility of human resources—which must be organized and modified swiftly and intricately—can also be improved by education and skill development. Through boosting production, extending work options, and creating new jobs, education and skill can lower unemployment. Nonetheless, between 2017 and 2021, Indonesia's education and skill levels continued to increase favorably but slowly, showing that greater focus and assistance from the public and government are still required. Furthermore, there is still room for improvement in Indonesia with regards to the caliber and applicability of education and skill to the demands of the labor market. Therefore, in order to enhance education and skill levels in Indonesia, cooperation is required between the government, business sector, and society. This cooperation can be defined as a combined effort by government agencies, the business sector, and society. Indonesia's education and skill levels will therefore be able to produce a workforce that is competent, competitive, and equipped to handle the demands of the globalization and digitalization period.

Suggestions

The government should increase budget allocations and incentives for education and skills, especially those based on information and communication technology (ICT), in order to achieve the targets of Indonesia's vision 2045. The business world should collaborate with the education world in developing curriculum and competency standards that are in line with the needs of industry 4.0, as well as providing internship opportunities, training, and guidance for education and skills students and graduates. Communities must increase their awareness and interest in education and skills, especially those oriented towards creativity, innovation and entrepreneurship, and utilize the learning facilities and resources available online and offline. Education and skills learners and graduates must continue to develop themselves and adapt to the times, and not quickly feel hopeless and give up easily when faced with challenges and competition in the scope of work.

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