

## The Need For Educational Psychology In The Industrial Era 4.0 Entering A Society 5.0

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**Abstract.** Industrial Revolution 4.0 and Society 5.0 is a phenomenon that describes the progress and development of industry and society which is characterized by the appearance of technology. Revolutions that occur in the world, both the Industrial Revolution 4.0 and Society 5.0, provide many changes in various fields, one of which is education. However, technology can provide many benefits to improve the quality of education if used properly. The research method used in making this scientific paper is qualitative with literature review from various journals and books. The results obtained are the role of Educational Psychology in facing the era of the Industrial Revolution 4.0 and Society 5.0, namely, to form good student character, direct the use of technology as a means of self-development, and to deal with changes in the conventional teaching and learning process to become more modern in order to improve the skills of using technology and the quality of human resources. Efforts that can be implemented to improve skills, efficiency, effectiveness, and wisdom in using technology are through Digital Literacy, Distance Learning, Blended Learning, and honing students' Higher Level Thinking Skills (HOTS).

**Keywords:** Revolution Industry 4.0, Society 5.0, Technology, Educational Psychology.

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### INTRODUCTION

We must have known the term that has been familiarly heard in the current era, namely the Industrial Revolution 4.0. This term first appeared in 2011 by the German government. Industry 4.0 is the fourth industrial revolution which is characterized by the appearance of digital technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), Robotics, and Big Data. According to German Chancellor Angela Merkel (2011), the Industrial Revolution 4.0 is a comprehensive transformation of all aspects of production in industry through the merging of digital and internet technologies with conventional industries. This revolution aims to boost productivity, efficiency, and effectiveness in improving various industrial sectors, especially to boost a country's economy to enter the world's top 10 in 2030. Therefore, with the development of the Industrial 4.0 Revolution, competent human resources are needed to deal with the changes that occur.

Social change that occurs rapidly and unplanned is called a revolution. A revolution is a radical and fundamental shift in life that occurs rapidly. The French Revolution, the American Revolution and the British industrial revolution are some well-known examples of revolutions. Revolutions can bring about many social, economic and cultural changes. Society 5.0 is a new concept created by Japan and inaugurated two years ago, on January 21, 2019, at the World Economic Forum in Davos, Switzerland (Puspita et al., 2020). Nastiti and Abdu (2020) explained that basically, the basic concept of Society 5.0 aims for humans to take a greater role as a source of creativity in creating novelty in all fields, not limited to manufacturing or industry. The existence of the Society 5.0 phenomenon is motivated by the Industrial Revolution 4.0. Society 5.0 provides an understanding of "human-centered society" where humans are the center while still relying on technological advances so that the real environment can be integrated with the virtual world. In this Society 5.0 era, it is hoped that people can utilize this rapidly developing technology into new opportunities and innovations for human life.

The Industrial Revolution 4.0 and Society 5.0 are identical to technology. Experts have different understandings and definitions of technology. Technology can be interpreted as the systematic application of science and other knowledge to solve problems or meet human needs,

this is a general understanding. Technology can also be interpreted as a method as a whole that rationally leads and has the characteristics of efficiency in various fields of human activity and activity. Technology can also include understanding systems, organizations, and techniques. In a broader sense, technology can shape and create a community for humans. Technology can also be interpreted as science that studies skills in creating tools to processing methods to help meet human needs. Therefore, technological development will not be separated from human life and technology has changed the way humans live, work, learn, socialize, and so on.

Technology has many impacts on humans, both good and bad. There are many good impacts that we can feel while using technology, some examples are, providing access to news widely, knowledge and entertainment quickly, accelerating the flow of communication and information, conducting trade and cooperation with parties who have long distances easily, etc. However, there are also many adverse effects felt from the use of technology. Some examples of the adverse effects of using technology are, on eye health if too often in front of gadgets, lack of socialization activities that result in individualism, internet crimes such as viruses, information utilization, the spread of negative content, and so on. Realizing the good and bad effects of technology is important as individuals, especially as prospective teachers who will face the world of children who are already familiar with technology to take the right steps in the use of technology in a positive direction.

The revolution that is happening in the world, both the Industrial Revolution 4.0 and Society 5.0, has made many changes in various fields, not only in the industrial or economic fields, but also in education. Education is an important thing in human life in facing and preparing for a future that is increasingly sophisticated and will continue to change rapidly. There is a need for innovation in educational psychology which has a role in human resources in the future. Educational psychology is a branch of psychology that focuses on how to understand teaching and learning in an educational environment. Therefore, educational psychology is an important science for teachers in carrying out their duties to provide the effectiveness of the teaching and learning process to students. This effective learning process can be obtained because educational psychology becomes the main foundation of education and helps teachers in measuring the potential of each student.

Educational Psychology aims to assist educators in understanding the developmental changes and growth that occur in individuals. Changes and developments in students are greatly influenced by technological developments and social changes that exist in this era. According to Sumadi Suryobroto (2006), educational psychology has its scope which is the basis and limit or what distinguishes it from other psychological sciences. The scope of educational psychology includes knowledge about development, learning, motivation, learning, and other related issues that arise in educational settings. It is undeniable that the psychology of education taught to students must follow the changing era and provide new innovations to education.

Based on the introduction and literature review to this research, several research questions were obtained related to the Industrial Revolution 4.0, Society 5.0, and Educational Psychology. The following are the research questions obtained:

1. What are the roles and needs of Educational Psychology in entering the Industry 4.0 and Society 5.0 era?
2. What are the applications that Educational Psychology can provide in the era of Industry 4.0 and Society 5.0?

## **METHOD**

The method used in this research is a quantitative method. The technique used is literature review to be able to collect credible information from journals, articles, and books. The references obtained are relevant to the topic "The Need for Educational Psychology in The Industrial Era 4.0 Entering Society 5.0". There are 24 relevant reading sources to review, from 2020-2023, but in this study we decided to review 7 sources. The research method carried out is narrative. This method is used to be able to provide more knowledge and understanding of the role of educational psychology in the Industry 4.0 and Society 5.0 revolutions, as well as its application to education and the teaching and learning process. This research focuses on the needs of educational psychology in today's technology-oriented era. The sources of references obtained came from the

Internet and Google Scholar. The research results obtained from various sources are then analyzed by comparing, considering, and evaluating from various perspectives and opinions of experts.

## **LITERATURE REVIEW**

Based on the journal entitled "Ketergantungan Pendidikan pada Teknologi: Tantangan dan Kritik Terhadap Konsep Pendidikan 5.0" written by Putra, M. R. A., in 2023, the Society 5.0 era affects education which makes changes to the way of learning, teaching, and preparing for future careers. Learning in this era emphasizes more on improving skills in the use of technology that continues to develop every day, namely 4C (Critical thinking, Creativity, Communication, and Collaboration). This article explores research related to the concept of Education 5.0 in relation to Industry 4.0. A significant change that has occurred due to the Industry 4.0 era is in the learning experience. The teaching and learning process in the Education era now emphasizes the integration of technology and learning resources.

Based on a journal entitled "Pentingnya Psikologi Pendidikan Bagi Generasi Digital" written by Sasmitha, H., in 2022, educational psychology has a major role in efforts to reduce the negative impact of technology use on society, especially in the form of technology in field of education. The international community agrees that there is a need for technological development in education by teaching 6 technology standards for students, namely: creativity and innovation, communication and cooperation, literary and information research, critical thinking, digital citizenship, and technology operations and concepts.

Based on a journal entitled "Peran Psikologi Pendidikan Melalui Literasi Digital Menuju Society 5.0" written by Nikita, M. and Supraba, D., in 2021, changes in education caused by Society 5.0 require educational psychology to realize education that can face the era of Society 5.0. One of the steps that can be taken to realize Society 5.0 is by doing digital literacy. Digital literacy can help students in mastering digital tools, but accompanied by their ability to search, develop new ideas, as well as disseminate the information and innovations they make to the public with wise use.

Based on qualitative research conducted by Na'im, Z., et al. in 2021 who use the Phenomenology method and make parents as subjects, it can be concluded that parents have a big role in accompanying children to learn at home. Assisting children to study at home can affect children's learning outcomes. Learning outcomes that are very influential with parental assistance are related to affective and psychomotor. At home, parents play a role in providing direction or guidance to students in doing schoolwork or in learning. Therefore, parents have the responsibility to provide motivation and enthusiasm for learning and by providing facilities that support children's learning activities. Parents are the main responsible in the education process of their children. This is a parental obligation because every parent wants a good future for their children.

According to the results of quantitative research conducted by Sari, D. A., et al, teachers play a major role in providing learning motivation and are responsible for providing innovative and creative learning processes and models. Motivation is important to give to students to improve learning achievement. Both intrinsic (internal drive) and extrinsic (external individual drive) motivation are key factors in student success. Encouraging and praising students' work can give them motivation. Teachers must also be able to get closer to students through adjusting to different student conditions and identifying students' reasons if they are not eager to learn. Forming a good relationship between students and teachers is not an easy thing, teachers must build good communication and trust. However, if only motivation is considered student learning outcomes will also not be optimal, teachers must bring students closer to learning concepts with various interesting learning models according to the stage or phase of student learning, and oriented to student-centered learning where the teacher acts as a facilitator.

Based on a book entitled "Pembelajaran Jarak Jauh: Konsep dan Tantangan" written by Faalah, M., et al, in 2023, distance learning is a method that is widely used in the current era, especially because of the rapid development of technology and information. Distance learning or

e-learning certainly uses technology in teaching and learning activities such as to communicate and provide material as well as learning strategies. Teaching and learning activities carried out with this method are not limited by space and time. This method also reduces the use of paper, uses network-based facilities, and updates information faster, so a lot of formal and non-formal education uses this method to be more flexible and efficient.

Based on a journal entitled "Society 5.0: HOTS Learning of SOTA (State of The Art)" written by Sari, S.M., et al, in 2020 a developing education must provide optimal and quality services to students in order to guarantee a good future. The cognitive approach promoted by Piaget and Vygotsky for Educational psychology in learning, makes an important and significant contribution to the construct of equilibration and its application. To be able to face era 4.0, the focus of learning is technology and information based. A more cooperative and meaningful development of Higher Order Thinking Skills (HOTS) is also needed to improve students' critical thinking. Therefore, a training program for teachers on the use of technology is needed in order to create efficient learning.

## RESULTS

People certainly follow the flow of the Industrial Revolution 4.0 and Society 5.0 by using technology every day for communication, business, etc., as well as children who must have recognized technology and even use it in their daily lives. The Industrial Revolution 4.0 and Society 5.0 have a huge impact on education, because this revolution is more oriented towards the use of technology for the advancement of industry, economy, society, etc. According to Tukiran (2007) to achieve human resource development goals, a country must pay attention to three main factors, namely: education, health and economy. There are factors that make the implementation process in the field of education very complex, including teachers, students, educational goals, materials, and teaching tools. To be able to implement these elements requires professionalism on the part of education service providers, with more attention to the psychological aspects of educators, students, and others. Thus, in Educational Psychology, teachers can learn how to shape the character and personality of children who are technologically literate but use it wisely.

Educational Psychology is needed to provide excellent opportunities for students to hone reasoning skills and on the social-emotional aspects of students' lives in the context of their cultural and social behavior. However, as we know that children in the era of Society 5.0 today are very difficult to socialize well in the real world, they prefer to socialize in cyberspace. Many children use technology to do bad behavior or do not provide any development to them. Therefore, the role of Educational Psychology in problems caused by technology in the era of Industrial Revolution 4.0 and Society 5.0 is to provide intellectual, emotional and spiritual guidance because it is actually at that time that the best characters will begin to grow as expected from the wider community (Abd Majid, 2014) accompanied by the ability of teachers who are qualified in the field of technology.

Educational psychology is an important component of the application of technology in education. In the context of the use of technology, educational psychology plays the following roles:

1. Educational psychology helps understand how students learn and develop, including how technology is used as a learning tool.
2. Educational psychology is concerned with the effectiveness of educational interventions, including the use of technology as an effective learning tool.
3. Educational psychology also contributes to digital literacy, which helps students and educators make good use of technology.
4. Educational psychology contributes to the reduction of the negative impact of the use of technology, especially in the education of the skilled digital generation.
5. Digital psychology plays an important role in the transformation of 21st century education as it leverages digital technologies to create connected learning environments, support collaborative learning, and facilitate lifelong learning.



Thus, educational psychology has a significant role in understanding, managing, and utilizing technology in educational contexts, which includes an understanding of how students learn.

The role of parents and teachers is still very important in education that already uses technology. The responsibility of teachers and parents is to guide and facilitate the development of students, both in terms of academics and character. They must also provide proper guidance and supervision so that students can use technology wisely and responsibly. In addition, teachers and parents should work together to provide a broad and integrated education that includes academics, character, and life skills. They must also work together to prevent the negative impact of technology. The role of teachers and parents in the use of technology in education remains very important and needs to be done with good collaboration to achieve optimal results. Parents need to monitor and supervise the use of technology by their children at home, while teachers need to provide proper instruction and supervision at school.

In Azizah's article (2020), education 5.0 is defined as an educational transformation that integrates advanced technology, a holistic approach, and the development of 21st century skills, namely critical thinking, creativity, communication, and collaboration. Industry 4.0 provides opportunities for education to improve the quality of learning by utilizing advanced technology, while education provides high quality human resources to Industry 4.0 and Society 5.0. In this case, technology is used as a tool to improve the efficiency, effectiveness, and relevance of learning.

The concept of Education 5.0 has the characteristic of integrating technology with the learning process. Efforts that can be made to support the realization of integration between the use of technology and the learning process are through digital literacy activities for both educators and students in educational psychology. These efforts aim to improve technology use policies and use technology to improve the learning process. Other efforts or methods that can also be done in dealing with and utilizing technological advances in the era of Industry 4.0 and Society 5.0 are by conducting Distance Learning which is not limited by space and time, providing efficiency and effectiveness to be achieved in this era. Blended Learning is also needed to still provide direct interaction between students. Teachers can also provide materials and projects related to the use of technology to be able to train students' Higher Level Thinking Skills (HOTS).

## **DISCUSSION**

Based on previous theories and research that have been reviewed, as well as the results obtained from this study, answers to the questions in this study were obtained. Educational psychology is very necessary for both educators and students. Higher education needs to provide psychological education to prospective teachers in order to understand the development of psychology that occurs in the current era. The principles of psychology applied in education are able to identify appropriate ways to facilitate children's cognitive and social development. By learning and understanding psychological concepts and theories in the past and present eras, prospective teachers and teachers can do teaching by developing various teaching methods that are suitable for the development of child psychology. By understanding each stage of student learning development, students will get good learning outcomes.

In the era of the Industrial Revolution 4.0 and Society 5.0 which is oriented towards technology, educators need to provide teaching methods that utilize technology but still prioritize social interaction with students. Updating teaching methods in accordance with today's technological era is needed to improve students' abilities in the teaching and learning process. Students also need to be trained to use technology in order to adapt in the current era. Therefore, teachers need to provide digital literacy education to students so that they are able to use and utilize technology correctly and safely, and can have a positive impact on others. Teachers can also provide distance learning to students who cannot attend directly in class so that students do not fall behind learning, this method also provides effectiveness and efficiency for teachers and students. Teachers also need to pay attention to the importance of socializing in children, therefore teachers can do blended learning to maintain face-to-face social interaction. Providing

tasks and activities that involve students' ability to analyze, or solve complex problems is also necessary for teachers to provide in order to sharpen higher-order thinking skills in students. Therefore, collaboration between educational psychology and the design of teaching methods is needed in the era of the Industrial Revolution 4.0 and Society 5.0.

Students as the nation's children are certainly expected to be able to compete to improve their achievements. The young generation has great potential for nation building, especially in increasing the capacity and quality of high human resources in Revolution 4.0 and Society 5.0 and has the opportunity to reflect and carry out various activities that will have a positive effect. The Industrial Revolution 4.0 and Society 5.0 have a great influence on the field of education. Education in the current era emphasizes the integration of technology and the learning process. The role of psychological education in dealing with the impact or effects of the era of technological sophistication is to guide students intellectually, emotionally, and spiritually so that they have good character and can use technology to carry out positive activities and increase their potential. Some efforts that can be made to improve the quality of education with the utilization of this technology are Digital Literacy for the wisdom of using technology, Distance Learning to provide efficiency and effectiveness, Blended Learning to maintain students' social life, and providing projects that hone students' reasoning and Higher-Level Thinking Skills (HOTS).

## CONCLUSION

Students as the nation's children are certainly expected to be able to compete to improve their achievements. The young generation has great potential for nation building, especially in increasing the capacity and quality of high human resources in Revolution 4.0 and Society 5.0 and has the opportunity to reflect and carry out various activities that will have a positive effect. The Industrial Revolution 4.0 and Society 5.0 have a great influence on the field of education. Education in the current era emphasizes the integration of technology and the learning process. The role of psychological education in dealing with the impact or effects of the era of technological sophistication is to guide students intellectually, emotionally, and spiritually so that they have good character and can use technology to carry out positive activities and increase their potential. In the field of Education, not only teachers play a role in educating children, parents also have a big role in educating children at home. Giving a time limit for the use of technology for children's health, there are so many diseases that have been suffered by children due to too addicted to technology, this is what parents should avoid and monitor. Parents and teachers can collaborate in educating children to use technology as a rich learning resource and use it to improve students' soft skills or talents. Some efforts that can be made to improve the quality of education with the utilization of this technology are Digital Literacy for the wisdom of using technology, Distance Learning to provide efficiency and effectiveness, Blended Learning to maintain students' social life, and providing projects that hone students' reasoning and Higher-Level Thinking Skills (HOTS).

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