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Utilization artificial intelligence to improve creativity skills in society 5.0

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Abstract. The purpose of this research is to take advantage of Artificial Intelligence which is used to increase Creativity Skills in the era of society 5.0. Data collection is done to see subtle problems and develop solutions. Technique data collection is a literature study. Creativity Skill is one of the abilities that students must have to answer challenges, namely the era of society 5.0. The era of society 5.0 is an era where new values created by technological developments can minimize human responsibility and future economic problems. In this case, Artificial Intelligence is a way to maximize students in social change which requires someone to be innovative, creative by emphasizing contextual learning in which students must be active. Artificial intelligence (AI) enables machines to learn from experience, adapt to new inputs and perform human-like tasks. Most of the AI you hear about today - from computers playing chess to adult cars - rely heavily on deep learning and comparing natural language. Using this technology, computers can complete specific tasks by processing large amounts of data and managing patterns in the data so that it is hoped that the use and development of Artificial Intelligence can increase creativity skills to face opportunities and challenges in the era of 5.0 society.

1. Introduction

Changes in technology are increasing rapidly, making people have to participate in these changes, with these many innovations, there are many challenges and opportunities, especially in the era of society 5.0. The many forms of this innovation include the Internet of Things (IOT), Artificial Intelligence (AI), big data, and the use of robots [1]. Especially artificial intelligence (AI), its use is not only limited by the telecommunications industry sector but also the banking, manufacturing, service sector, even within the government sector. [2]. No exception in the education sector which has become an institution in seeking knowledge and improving education. In fact, in the career world, many jobs have disappeared because they are no longer needed.

So that many types of work have changed with various new skills besides that in several regions in several countries, the implementation of artificial intelligence has reached almost 56%, especially in the industrial sector [3]. Later it is necessary to welcome the changes that must be used. The essence in the era of society 5.0 itself states that technological transformation means to humanize humans[4]. Therefore, guidance is required to utilize Artificial Intelligence (AI). The use of Artificial Intelligence (AI) is needed to have 21st-century skills which are abbreviated as 4C, namely critical thinking

(critical thinking), collaboration (collaboration), creativity (creativity), and communication (communication). [5] This time the paper will focus on creativity skills.

Therefore, integrating 21st-century skills in the learning process effectively becomes very important, one of which is by using Artificial Intelligence (AI) well [3]. The essence in the era of society, 5.0 states that technological transformation means to humanize human beings [4]. Therefore, in facing developments in the period of society 5.0, it is necessary to optimize the intelligence possessed by an individual, especially in the increasingly rapid development of technology.

2. Method

The method used in this paper is to use the literature review method. Here the process of collecting data is done in the form of literature that has been published and written by other authors. Literature used, such as books, articles, and journals [6]. Some critical and quality information from the literature obtained, combined, and combined with strengthening this writing. For this paper, we did several processes of literature review.

Data analysis techniques are descriptive argumentative. Writing is done by looking at the relevance and synchronization between one data/information, one with other data/information following the topics studied. Then, the conclusion of the paper is made. Findings are obtained after referring back to the formulation of the problem, the purpose of writing, and the discussion. The conclusions drawn represent the subject matter of the paper and are supported by practical suggestions for further recommendations.

3. Result and Discussion

3.1. Understanding Artificial Intelligence

Artificial intelligence (AI) or artificial intelligence added to a system or in other words, the system's ability to interpret external data correctly and that data and used the processed results for a specific purpose. [7][8]. Artificial intelligence (AI) is an artificial intelligence that is integrated with the system, in general, the AI system will automatically be able to read a human's image, voice or desire about something. Artificial intelligence is the study of how to build a computer system that has intelligence in various ways. [9].

Artificial intelligence provides services to humans whose existence is maximized for positive things. [10] argues that AI is a mind design, which means creating a system similar to how the human brain works. Some foundation in the truth of AI [11] as follows :

3.1.1. Philosophy

Some have speculated that the machine was capable of acting of its own accord. This is concerned by various parties regarding the rapid development of AI technology. Do not let technology take over the existence of humans as social beings and caliphs on this earth.

3.1.2. Mathematics

The world's philosophers believe that there are fundamental things about understanding the idea of AI, but a leap towards science that requires a high mathematical formulation, including three essential things, namely: logic, computation, and probability. It means that the invention of AI is separated from mathematical calculations for AI to become a system that is useful for human needs. AI development requires an algorithm which is quite complex to learn so that mathematics provides a valuable role in the development of AI technology in the future.

3.1.3. Economy

Many think that economics is always about money, but economists argue that they are continually learning how people make decisions that lead to more promising results. This statement explains to

everyone that to make money or the expected outcome, a strong effort and analysis are needed. Hopefully, the economic development will be predicted to analyze further research on AI analysis in diagnosing, monitoring, and making rational decisions.

3.1.4. Neurosains

Neuroscience is a branch of health science that studies the human nervous system, both nerves throughout the body or nerves in the human brain. It is predicted that technology development will reflect scientific developments in neuroscience which will improve the performance and quality of AI in various fields. The brain and digital computers are two very different things, but the human brain is far more sophisticated than any computer in the world. This statement could be refuted if in the future, AI technology is developed that can compete with the human brain and even outperform the human brain. AI technology development must be studied closely and deeply so that negative impacts globally can be prevented early on.

3.1.5. Psychology

Several studies have shown that the model can be used to guide psychological memory, language, and thinking skills, respectively. This statement indicates that the theory should be like a computer program in which it contains various information, and several congenital functions are involved in the process. This is a fundamental consideration in developing AI technology, especially in terms of processing data in the human brain.

3.1.6. Computer Engineering

Two things are needed for the implementation of AI to be successful, namely intelligence and objects. The development of computers from time to time is getting more sophisticated with visualization of the memory, speed, and accuracy of the data generated. AI is also controlled by anything deep and sophisticated from the software that is on a computer, which supplies the operating system, programming language, and the tools needed to create a program. The more sophisticated the computer, the better the resulting program, so that the intelligence level of AI will increase.

3.1.7. Control theory and security issues

Technology must be controlled and can be maintained properly. The security embedded in this technology must also be safe so that not everyone can access and operate it. Calculus and algebraic matrices are two tools in control theory. Through algorithm which is quite complicated to study, mathematics provides a valuable role for the development of AI technology in the future.

3.1.8. Linguistics

B. F. Skinner also published about verbal behaviour. At a glance, this theory learns about the communication behaviour patterns of each person. The development of modern linguistics and AI technology grew almost simultaneously, which then gave birth to hybrid technology in the field of linguistics which was named computational linguistics or natural language processing the ability to think fluently.

So that from the explanation above, Production with The Industrial Revolution will change the system used by humans as the main resource, into a system that can work collaboratively with automatic technology machines and tools. [12]. But with the development of technology, there must be a balance and intelligence of spirituality to make it more balanced in everyday life. Therefore, the development of applications related to spiritual intelligence in the era of society 5.0 is essential, considering that spiritual intelligence is a critical factor for accompanying developments in the era of society 5.0. Moreover, in the development of media, guidance and counselling services are needed [13]. If students have been introduced to artificial intelligence and used positively, of course, this will

create a generation that progresses according to science and technology abilities. To build this advantage, the Indonesian people rely on individuals who have the bright potential [14].

3.2. Creativity Skill

Creative thinking is the ability to generate a variety of new and original ideas and possibilities [15]. More creative thinking will not be born suddenly without abilities. High curiosity and follow with skills in reading. A creative person always has an interest, wants to experiment with adventures intuitively. The indicators of creative thinking include:

Table 1. Indicator Creative Skill

No	Indicator	Behavior
1	The ability to think fluently	Ask lots of questions, the ability to come up with similar ideas to solve a problem.
2	The ability to think flexibly	Provide various interpretations (interpretations) of an image.
3	Original thinking ability	Provide a variety of interpretations (interpretation) of a problem. Thinking of things that other people never think of it.
4	Detailing ability	Develop or enrich the ideas of others. Arrange the steps in detail.

Indicators of creative thinking in the cognitive realm are as follows:

- The ability to think fluently (Fluent), it means that students can ask a lot of questions and are able to come up with similar ideas to solve a problem. For example, students gave some events related to simple airplane concepts. Then from this event, students can put forward ideas and make questions.
- The ability to think flexibly (Flexibility), is that students can provide various interpretations of an image. For example, students are given a picture, then from the pictures students are given a problem related to the benefit itself.
- The ability to think originally (originality), is that students can provide various interpretations of an image and test things that others have never thought of. For example, students are given a problem, so that from these problems students interpret a different picture from the answers of other friends, but the concept is the same.
- Ability to detail (Elaboration), students can develop or enrich the ideas of others and compile detailed steps. For example, students make questions related to simple aircraft, then from these questions students answer in their way, from these answers are given explanations in the form of input or illustrations in the form of other reasons that can strengthen the responses made by these students.

The four indicators will be used to formulate learning objectives that will be achieved in measuring students' creative thinking skills with written tests, namely the posttest and pretest, which consist of essay questions.

3.3. Artificial Intelligence Integration for Creativity Skills

The development of more recent times, of course, requires an educator in schools to be more creative and innovative in developing the media or methods used in the teaching and learning process. The era of society 5.0 is an era which everything has integrated the role of humans and the use of technology, for example, an application. Moreover, in the development of media, guidance and counselling services are needed [13].

So that the counsellor must provide services that integrate artificial intelligence to apply in every service carried out with students. This is also in line with empathy for the competence of guidance and counselling teachers. This is also stated in the ministerial regulation no. 27 of 2008 which has empathy

competencies including pedagogy, personality, and professional [16] Even by combining contemporary principles, it is mandatory for guidance and counselling teachers to integrate with artificial intelligence. Even the services provided must be technology-based. In addition, guidance and counselling teachers must emphasize skills to face the era of the industrial revolution 4.0 and the era of society 5.0 in dire need of soft skills. And this is the main task of the guidance and counselling teacher.

4. Conclusion

The conclusion from the input of this paper is that with the changing times, a new paradigm is needed to utilize artificial intelligence in everyday life to improve creativity skills. Of course, this is very much needed by students, because being able to understand and take advantage of artificial intelligence in everyday life will help in the learning process. So that it is able to open the insight that artificial intelligence is not something that must be avoided, it just needs a combination so that students can survive and be able to keep up with changing times. Of course, this requires further research to provide even new images in utilizing artificial intelligence in everyday life.

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