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VALUE AND TECHNOLOGY: MAINTAINING BALANCE IN SOCIAL SCIENCE EDUCATION IN THE ERA OF ARTIFICIAL INTELLIGENCE

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Abstract

In the era of Industrial Revolution 4.0, technology, especially artificial intelligence (AI), has brought major changes to various aspects of life, including education. Social science education now faces challenges in maintaining moral and ethical values amidst the rapid adoption of technology. This research aims to explore how values and technology can go hand in hand in social science education in the AI era. Using a qualitative approach and literature analysis, this research finds that AI has the potential to enrich social science learning through personalized learning and in-depth data analysis. However, the integration of these technologies also poses risks, such as algorithm bias and reduced human interaction. Therefore, it is important to maintain a balance between the application of technology and the cultivation of human values, with strategies that prioritize the development of critical and ethical thinking skills. It is hoped that this research can provide guidance for educators in integrating AI into the social science curriculum without ignoring essential humanist aspects.

Keywords: **Values, Technology, Balance, Social Science Education, Era of Artificial Intelligence**

INTRODUCTION

In the era of Industrial Revolution 4.0, technology has become an integral part of human life. Artificial intelligence (AI) is present as one of the most impactful technological innovations, influencing various aspects of life, including the world of education. AI offers a variety of solutions that can revolutionize the way we learn and teach, from adaptive learning systems that can adapt material according to student needs, to the use of chatbots that can provide real-time guidance. In this context, social science education cannot be separated from the influence of AI.

Although AI can enrich the social science learning process by providing deeper data and analysis and helping students understand social phenomena more comprehensively through simulations and predictive models, these technological advances also present major challenges. One of the main challenges is how social science education can continue to instill moral, ethical and humanitarian values amidst the increasingly dominant wave of digitalization. These values are important for forming individuals who are not only intellectually intelligent but also have social sensitivity, ethical awareness, and critical thinking abilities.

However, there are concerns that a focus on technology, especially AI, could shift attention away from essential human aspects. For example, the use of algorithms in decision making can give rise to unconscious bias, and reliance on AI in the learning process can reduce the human interaction that is an important basis in social studies teaching. Furthermore, excessive use of AI in education can reduce students' critical abilities in evaluating information and fostering empathy for social issues.

This issue raises critical questions regarding how to maintain a balance between the application of technology and the instillation of human values in social science education. This balance is not only important for the sustainability of social science education itself, but also to ensure that students are able to face future challenges wisely, with integrity, and with a high sense of social responsibility.

This research aims to examine how values and technology can go hand in hand in social studies education in the AI era, as well as identifying effective strategies to maintain this balance. The novelty in this research lies in exploring the integration between technological advances and the instillation of humanist values in social science education, a topic that is rarely studied in depth. Thus, it is hoped that the results of this research can contribute to the development of social science education theory and offer practical guidance for educators in applying AI wisely without ignoring human values which are at the core of social life.

METHOD

This research uses a qualitative approach with literature analysis methods to explore how values and technology can go hand in hand in social science education in the AI era. Literature analysis was chosen as a method because it allows researchers to examine and interpret various academic and non-academic sources that are relevant to the research topic, so as to obtain an in-depth understanding of the issue being researched.

- Research Type: Qualitative with literature analysis methods.
- Data Collection Techniques: Data was collected through literature studies, including scientific journals, books, research reports, and other relevant sources. This literature was selected systematically to ensure relevance to the topic of values and technology in education.
- Respondents/Participants: In the context of qualitative research using literature analysis methods, there are no direct respondents or participants who are interviewed or observed. Instead, this research relies on data already available in the relevant literature.

RESULTS AND DISCUSSION

Results

Introduction to AI in Education

Artificial Intelligence, also known as AI, has become an important part of many fields, including education. It is possible that artificial intelligence can play an important role in teaching ethical and moral values in value-based education. In(Fauziyati, 2023) Artificial intelligence (AI) explains that AI is a branch of science that allows machines, such as computers, to carry out tasks that are usually carried out by humans. AI aims to develop intelligence in machines that resembles or even surpasses human capabilities. In AI, there are four main approaches: act like humans, think like humans, think rationally, and act rationally. AI is used for tasks such as speaking, hearing, seeing, learning, thinking, and problem solving, and is applied in a variety of contexts such as web search, voice recognition, facial recognition, language translation, product recommendations, data analysis, and graphic arts production.

Artificial intelligence-based chatbots help students by providing instant academic advice. AI enables adaptive learning systems to adapt learning materials and methods to meet students' unique needs, improving student understanding and performance. AI grades student work automatically, saving teachers time and providing immediate feedback. In vocational education, simulations and virtual reality (VR) allow students to gain practical skills in a safe virtual environment. Additionally, AI uses a data-driven recommendation system to help students choose educational programs that suit their interests and talents. Additionally, artificial intelligence has the ability to identify patterns and trends in educational data, which can help improve learning effectiveness.(Muhammad Yahya et al., 2023)

In addition to providing automated feedback and suggestions, AI tutor systems use machine learning technology to aid teaching and learning. Student engagement analytics systems

track how students participate in learning activities and provide recommendations on how to increase student engagement. Plagiarism detection systems find cases of plagiarism by seeing whether documents are similar to previous work. In addition, the intelligent recommendation system provides study material that suits students' needs, the sentiment analysis system assesses students' feelings towards the study material, the emotion detection system assesses students' emotional expressions on the face and body language, the automatic evaluation system assesses students' answers on tests or quizzes, the system machine learning helps students learn interactively, speech and writing recognition systems identify sounds and writing, and speech and writing recognition systems It is hoped that educational institutions can use all these types of artificial intelligence to produce efficient, effective and fast education in the management of related data with their education.(Apriadi & Sihotang, 2023)

There is great potential to improve teacher capabilities by applying artificial intelligence (AI). AI enables the development of programs tailored to students' unique needs, and helps teachers create better learning materials. Artificial intelligence technology has the ability to analyze students' learning history to find their shortcomings and suggest the most suitable courses to improve the quality of their learning. ChatGPT and Perplexity.AI for natural language processing and Semantic Scholar for contextual scientific search are some of the artificial intelligence tools released. AI-based learning systems, virtual assistants, educational data analysis, interactive digital curriculum, automated evaluation, student progress monitoring, teacher development suggestions, AI-based counseling, parental involvement, and educational research are some examples of the use of AI in the field of Education.(Aceng et al., 2024)

AI has many benefits for education. One of the main benefits is the personalization of learning. Through AI, the system can collect data about each student's strengths and weaknesses and then design learning programs to suit individual needs. AI is also able to provide appropriate study material recommendations and analyze students' feelings about the material. This really helps teachers understand students' emotional responses and needs, allowing them to provide more appropriate support.(muqorrobin et al., 2024)

Studies also show that student collaboration does not occur spontaneously. For example, group members may not have the social interaction skills necessary to collaborate well. This can be a big challenge in online collaboration contexts where participants rarely meet in person. AIEd can help with this. have investigated a number of methods, but concentrated on four: adaptive group formation, expert facilitation, virtual agents, and intelligent moderation.(Griffiths & Forcier, 2016)

Challenges in AI integration

Challenges to be overcome include interpreting the results produced by the algorithm. Understanding mathematical concepts and intellectual elements is still done by humans, although AI can provide solutions. To solve this problem, artificial intelligence experts and mathematicians must work together. Additionally, ethical issues arise regarding the use of artificial intelligence algorithms in mathematics, such as questions of fairness, transparency, and accountability. It is important to ensure that the results produced by artificial intelligence systems are not only accurate but also ethical when used.(Khalisa Nada, 2023)

Ethical challenges in the technological age: Harari reminds us of ethical issues in the technological age. He stated that technologies such as online tracking and big data have made people vulnerable to invisible surveillance and manipulation. He emphasized that personal data security and privacy are important parts of human freedom. Harari stressed the importance of considering the ethical consequences and long-term implications of technological advances. He encouraged society to take a responsible approach, involving ethical participation in technology policymaking and open discussion.(Faiz et al., 2022)

The use of AI in education faces a number of significant challenges. One of the main

challenges is data security and privacy. With the widespread implementation of AI, there are major risks regarding student privacy and data that must be addressed carefully. Additionally, it is important to ensure that AI is used as a supporting tool in the learning process, assisting teachers and not replacing their role. AI should enable teachers to focus more on interactions with students and provide more personalized support. Another challenge is control and supervision. An active role is needed from educators, parents and the government to monitor the use of AI, so that this technology can be used wisely and professionally, ensuring that educational goals are maintained and important values in learning are not neglected.(muqorrobin et al., 2024)

There is a conflict between technological progress and moral responsibility due to the development and ethics of AI. Even though many countries and large companies are investing heavily in AI research and development, strict ethical standards are still needed. Research and development that considers ethics must be conducted to address ethical issues such as unemployment caused by automation, algorithmic bias, and privacy concerns. To ensure that this technology is applied in a way that is fair and beneficial to society, AI must focus on technical progress and cultural evolution.(Michael Reskiantio Pabubung, 2021)

Technology should not be the primary driver of instruction, but should be incorporated into the curriculum. Millennials want learning processes and content that they can create themselves, work together, and use advanced technology. But also pay attention to people's understanding of technology as the ultimate goal. Emphasize that technology cannot replace good instruction.(Kayworth & Whitten, 2012)

Balance between Technology and Social Science Education

In seminars(Halim et al., 2019)the importance of preparing oneself for the Industrial Revolution 4.0, which focuses on the dominance of digital technology and maintaining the cultural values and character of the Indonesian nation in accordance with the Pancasila Ideology. Pancasila education in universities is very important to face this challenge because it gives students a deep understanding of the ideology so that they can maintain national identity in a global society.

Ethical principles in Islam emphasize that technology must be used in accordance with Islamic ethical principles, including noble goals (maqasid al-syariah), justice, humanity, sustainable development, and example. The use of technology should promote virtue and morality. Islamic philosophers such as Al-Ghazali emphasized the importance of moral education and character development to achieve balance between worldly life and the afterlife. Meanwhile, Al-Farabi emphasized that technology must be used for ethical purposes and promote human happiness. Technology must be used wisely and based on Islamic moral values.

The views of Western philosophers, such as Plato, emphasize the importance of considering the moral and ethical implications of using technology to achieve goodness and justice in society. Yuval Noah Harari emphasized the need for ethical thinking in the development of modern technology, such as artificial intelligence and biotechnology, as well as the importance of protecting individual freedom and privacy.

The implications of technology for ethics include the potential for uncontrolled use of technology, which can lead to moral lapses, social isolation, and difficulty distinguishing between good and bad. Reasoned education about Islamic values, digital ethics, and awareness of the consequences of technological activities are essential to overcome the negative effects of technology on ethics.(Faiz et al., 2022)

Uncontrolled use of technology and social media can lead to moral deviance, social isolation and the spread of hoaxes, so it is important to have high moral standards and be responsible when using them. President Joko Widodo said that higher standards of morality are needed when using technology. The Big Indonesian Dictionary (KBBI) says that morality includes things such as manners, values and norms. Responsibility is awareness of bearing the consequences of decisions that have been made. Having a strong commitment to the circumstances and risks faced is very important. Ethical responsibility refers to

a state of mind that encourages the wise use of knowledge, respect for others, and human dignity.

How technology affects ethics and obligations can have both positive and negative impacts. Humani can process, communicate and disseminate information with the help of information technology, which consists of various hardware and software facilities. However, this technology can also be used for bad purposes such as harassment and spreading pornography. Therefore, it is very important to inform people, especially the younger generation, about how to use technology in a moral way. Information technology is intended to solve problems, encourage creativity, and increase work efficiency and effectiveness. Society must follow these technological advances carefully and adhere to moral and ethical principles so that technology can be utilized optimally for the benefit of humans.(Dewantara et al., 2023)

From the perspective of a human values-centered approach, AI tools should be designed to expand or enhance human intellectual abilities and social skills, and not weaken, conflict or usurp them. It has long been hoped that AI tools can be further integrated as an integral part of the tools available for human values to support analysis and action for a more inclusive and sustainable future.(Fajrillah, Muhammad Razali, Jam'an Amadi, 2024)

DISCUSSION

Values and Technology in Social Sciences Education in the AI Era

1. The Role of AI in Social Studies Education

The era of artificial intelligence (AI) has brought major changes in various aspects of life, including in the world of education. AI is not just a technological tool, it has become a transformational force that is changing the way we teach, learn and understand the world. In social studies education, AI offers tremendous potential in facilitating information access, data analysis, and creating more personalized and relevant learning experiences.

Research shows that AI enables personalized learning experiences, where the technology is able to adapt course material to students' needs, strengths and interests. AI analyzes data and student learning behavior patterns to offer appropriate learning resources, provide feedback, and adjust the difficulty level of assignments. In this way, AI improves student engagement, academic performance, and student retention in social studies education.(Harry, 2023)

Furthermore, AI can enrich social science education by offering complex simulations and analysis of large and complex social data. This enables a deeper, data-driven understanding of complex social phenomena, such as migration patterns, economic trends, or demographic changes. AI also supports more personalized and adaptive learning, where the technology recognizes individual learning patterns and provides appropriate feedback

2. Challenges of Technology Integration in Social Sciences Education

While the potential of AI in education is enormous, significant challenges also arise. One of the main challenges is how to ensure that technology does not replace the humanist aspects of social studies education. Social sciences have traditionally focused on developing critical thinking skills, sensitivity to ethical issues, and a deep understanding of social values such as justice, freedom, and solidarity.

Challenges in implementing AI in education, including the need for accurate and reliable data, training for teachers, concerns about data privacy and security, implementation costs, and potential bias in AI systems. Additionally, there are ethical challenges that need to be addressed, such as ensuring accessibility, transparency and fairness in the use of AI(Harry, 2023)

However, along with the potential that AI offers, significant challenges also arise. One of the main challenges is ensuring that technology does not replace the humanist aspects of social studies education. Social sciences have traditionally focused on developing critical thinking skills, sensitivity to ethical issues, and a deep understanding of social values such as justice, freedom, and solidarity. There is a risk

that an overemphasis on technology and data could obscure the importance of these aspects.

AI, for example, can carry hidden biases in the algorithms it uses, which could reinforce social inequalities if not carefully controlled. AI algorithms used in education may not be completely neutral, and without proper oversight, can reflect or even exacerbate existing biases in society. For example, in social data analysis, AI may ignore important cultural and social context, or fail to recognize ethical nuances in complex issues.

Furthermore, over-reliance on technology can reduce the human interaction that is an important part of social studies education. Learning that is too technology-based risks alienating students from direct and contextual learning experiences, where discussion, debate and direct social interaction become an integral part of the learning process.

Including a UNESCO report emphasizing that appropriate regulations are needed for using AI in education. While AI can be beneficial, there are risks to be aware of, such as discrimination, bias and impact on the role of teachers. Therefore, regulations and protections are needed to ensure that AI is used responsibly, while taking into account the interests of students and broader educational values.(Fajrillah, Muhammad Razali, Jam'an Amadi, 2024)

3. The Importance of Values in Social Studies Education

Moral and ethical values are at the core of social studies education. These values help students understand the social world around them and become responsible citizens with high social awareness. Social science education aims to develop critical awareness of issues such as social justice, human rights, diversity, and tolerance.

It is important for education professionals to consider how AI is applied in various educational contexts and its social impact. The history of the application of technology in education shows that its impact is rarely as ideal as promised. Therefore, a productive future for AI in education (AIED) requires deeper engagement between application developers and critical voices from the social sciences and history.(Williamson, 2024)

In the context of AI, it is important to maintain and even strengthen the focus on these values. Technology must be seen as a tool that can support, not replace, values education. For example, AI can be used to facilitate deep learning about ethics by providing simulated scenarios in which students can explore the consequences of various moral choices. However, this technology must always be complemented by critical discussions guided by educators to ensure that students truly understand the complexity of these ethical issues.

4. Seeking Balance between Technology and Values

AI has great potential to improve education and social development, but also requires a holistic and inclusive approach to address the associated ethical, social and technical challenges. Thus, cross-disciplinary collaboration and stakeholder engagement are critical to maximizing the positive impact of AI for individual empowerment and social progress.(Krisnawati et al., 2022)

To maintain a balance between technology and values in social studies education, several important strategies must be implemented:

First, education must remain focused on developing critical thinking skills, with technology as a tool, not an end in itself. Technology should support in-depth discussion of social and ethical issues, not just be a means of processing information efficiently.

Second, it is important to ensure that students are taught about technology itself—how technology operates, what its limitations are, and how technology can impact society. Digital literacy should be an integral part of the social studies curriculum, where students learn to use technology wisely and critically, including understanding how AI can be used for good purposes such as promoting social inclusion, as well as its potential risks and negative impacts.

Third, educators must be involved in the development and application of educational technology so that educational values are not lost amidst the focus on technology. Educators need to

be given adequate training to integrate technology into teaching without sacrificing the humanist dimension of education.

Fourth, it is important to involve communities and other stakeholders in discussions about the use of technology in education. This will ensure that technology adoption is not only based on efficiency and results, but also on broader ethical and social principles.

With these strategies, social studies education in the AI era can remain relevant and effective in forming individuals who are not only skilled in the use of technology but also have a deep understanding of the social and ethical values that underlie social life. A balance between values and technology is key to ensuring that social science education remains an important pillar in creating a just, inclusive and sustainable society.

5. Strategies for Maintaining Balance

Holistic Curriculum Integration: Social studies education must integrate a curriculum that not only teaches the use of technology but also emphasizes the importance of moral and ethical values. Students need to be taught how technology, especially AI, can be used for social good and how to prevent misuse of technology that could harm society. Learning should include critical discussions about the impact of technology on social life, including issues such as privacy, algorithmic bias, and social responsibility.

Development of Critical and Ethical Thinking Skills: Students must be trained to think critically about information presented by AI. They must be able to evaluate the data and conclusions generated by the technology, consider the ethical implications of using the technology, and understand the limitations of AI in a social context. Education that encourages students to question and reflect on the social consequences of technology will help in maintaining a balance between values and technology.

Leveraging Technology to Increase Empathy and Social Understanding: AI and other technologies can be used to develop learning tools that increase empathy and social understanding. For example, AI-based simulations can allow students to experience multiple perspectives and complex social situations, helping them understand issues such as inequality, discrimination, and social conflict in a more immersive and personalized way.

Collaboration between Technology and Humanist Education: In the application of technology, it is important to involve educators and experts in the field of social sciences in the development and application of AI in education. This collaboration will ensure that the technology used in education does not only focus on quantitative learning outcomes but also on developing student character and values. Thus, social science education can utilize technology to enrich learning without sacrificing its humanistic essence.

Supportive Policies and Regulations: Governments and educational institutions must develop policies and regulations that ensure that the application of technology in education is based on ethical and social principles. These policies may include guidelines for responsible use of AI, protection of student privacy, and efforts to ensure that technology does not ignore human values in the educational process.

CONCLUSIONS AND SUGGESTIONS

The era of artificial intelligence (AI) has brought significant transformation in education, including in the field of social sciences. AI offers various benefits, such as more personalized and adaptive learning, as well as deeper analysis of social data. However, AI adoption also poses challenges, especially related to how social, moral and ethical values can be maintained and strengthened amidst rapid technological developments.

It is important to ensure that technology is used as a tool to enrich education without sacrificing the humanist essence underlying social sciences. The integration of technology in education must be done carefully, paying attention to the potential for algorithmic bias and other negative impacts. Social studies education must continue to focus on developing critical

thinking skills and a deep understanding of social values, while leveraging technology to support more inclusive and responsive learning.

A balance between technology and values can be achieved through a holistic curriculum, development of critical and ethical skills, use of technology to increase empathy, and collaboration between technology and humanist education. Supportive policies and regulations are also important to ensure that the use of AI in education always takes ethical and social principles into account. With this approach, social science education in the AI era can remain relevant and effective in forming individuals who are not only technologically skilled, but also have high social awareness.

Based on research that has been conducted, it is recommended that educators and students receive adequate digital literacy training, especially in the use of AI, in order to understand its potential and risks in social science education. Social studies curricula need to be updated holistically by integrating technology and social values, while remaining focused on developing critical and ethical thinking skills. Additionally, cross-disciplinary collaboration between technologists, educators, and social scientists is essential to design AI solutions that meet educational needs and take ethical values into account. Continuous monitoring and evaluation also needs to be implemented to ensure that the use of AI supports the achievement of educational goals without neglecting human aspects.

Recommendations from this research suggest that governments and educational institutions establish firm policies regarding the use of AI, while maintaining ethical principles and social values. It is also important to continue conducting research into the long-term impact of AI in social studies education, especially regarding its influence on the development of students' ethics and social values. The role of teachers as facilitators must be strengthened with active participation in the application of educational technology, to ensure learning remains centered on human aspects. AI should be used as a supporting tool that enriches the learning process, increases efficiency without replacing the role of teachers, and still maintains meaningful human interaction.

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