STUDENTS' PERCEPTIONS OF ARTIFICIAL INTELLIGENCE TECHNOLOGY TO DEVELOP 21ST CENTURY LEARNING SKILLS

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Abstract:
The development of artificial intelligence technology is essential for students to follow to make learning easier. The trend of more powerful and intelligent AI is an opportunity for students to integrate into learning. Even though AI is developing rapidly, student learning abilities, such as critical thinking, computational thinking, creative thinking, and collaborative thinking, still need to be improved. The research aims to reveal the AI students often use in learning and their problems. The research design uses surveys and qualitative. Research data collection techniques used interviews and observations of final semester students. The analysis involved data reduction, data presentation, and conclusions. This research found that the AI that students often use is Canva, ChatGPT, and Quizizz. Canva is used to create image and video designs, ChatGPT is used to find answers to problems, and Quiziz is used to create exciting questions. Excessive use of AI can lead to dependence on technology, reducing interaction, which is essential in the learning process.

Abstrak:
Perkembangan teknologi kecerdasan buatan sangat penting untuk diikuti oleh para siswa agar pembelajaran menjadi lebih mudah. Tren kecerdasan buatan yang lebih kuat dan cerdas merupakan peluang bagi siswa untuk berintegrasi ke dalam pembelajaran. Meskipun AI berkembang pesat, namun kemampuan belajar siswa seperti berpikir kritis, berpikir komputasional, berpikir kreatif, dan berpikir kolaboratif masih perlu ditingkatkan. Penelitian ini bertujuan untuk mengungkap AI yang sering digunakan siswa dalam pembelajaran dan permasalahannya. Desain penelitian menggunakan survei dan kualitatif. Teknik pengumpulan data penelitian menggunakan wawancara dan observasi mahasiswa semester akhir. Data tersebut kemudian dianalisis dengan menggunakan reduksi data, penyajian data, dan penarikan kesimpulan. Hasil dari penelitian ini menemukan bahwa kecerdasan buatan yang sering digunakan mahasiswa adalah Canva, ChatGPT, dan Quizizz. Canva digunakan untuk membuat desain gambar dan video, ChatGPT digunakan untuk mencari jawaban soal, dan Quiziz digunakan untuk membuat soal-soal yang menarik. Penggunaan AI yang berlebihan dapat menyebabkan ketergantungan terhadap teknologi sehingga mengurangi interaksi yang penting dalam proses pembelajaran.

Keywords:
Artificial Intelligence, Educational Technology, Students Learning, Instructional Media

INTRODUCTION

Artificial intelligence technology provides opportunities to solve problems and simultaneously find learning solutions. Artificial intelligence technology's development affects two main things: positive and negative (Gao, Noroozi, Gulikers, & Biemans, & Banihashem, 2024 ; Yim & Su, 2024). Artificial intelligence technology can facilitate the learning process, but it can also cause the dehumanization of education so that learning is only limited to transferring knowledge (Smakman, Vogt, & Konijn, 2021). Students increasingly feel the role of artificial intelligence technology in supporting learning activities. The results of the National Socio-Economic Survey (Susenas) from the Central Statistics Agency (BPS) show that the percentage of students aged 5–24 years and over who have accessed the internet reached 77.46% in 2023. A Tirto and Jakpat survey revealed that 86.21 percent of students admitted to using AI assistance to complete the assignments given. The increasingly rapid role of artificial intelligence technology among students certainly opens up opportunities for students to learn at any time and under any conditions with online learning (Collin, Lepage, & Nebel, 2023).

In the 21st century, achieving learning goals is increasingly difficult; even though artificial intelligence technology is widely available, the reality is that the skills possessed still need to be improved. Indonesia's PISA results, which ranked 68th with a student literacy ability score of 371 proved this. Alfredo, Echeverria, & Jin (2024) found that the PISA results highlight the substandard computational thinking skills of students in problem-solving. Students' ability to think critically influences computational thinking ability. The reality of students' critical thinking is very worrying; one study stated that more than 45% of students were weak in critical thinking (Lane & Oswald, 2016 ; Guerrero & Sjöström, 2024). Low critical thinking skills will hamper students' creative skills in learning. Low student creativity can hinder a quality learning process. Students' communication and collaboration skills still need to improve, as research results state that students' communication skills to express ideas in front of other people face-to-face are still poor (Biango-Daniels & Sarvary, 2021 ; McLachlan & Tippett, 2024).

Learning skills are helpful for students to understand and master learning material so that students can find solutions to their learning problems. The low student learning outcomes suggest that issues arise during the student's learning process. One important factor influencing the success of learning in the 21st century is learning by utilizing artificial intelligence. Research shows artificial intelligence can trigger an interactive and

independent learning environment (Lewis & Sarkadi, 2024). Artificial intelligence can encourage students to express ideas and opinions via social media. Students who use artificial intelligence can increase their ideas and points of view in learning and be more courageous in expressing their opinions (Stahl, Antoniou, Bhalla, Brooks, & Jansen, 2023). Based on the results of a survey of UIN KH Abdurrahman Wahid Pekalongan students, Canva is the most widely used artificial intelligence. Using Canva in learning offers many benefits, including increased creativity, engagement, and the development of students' technology skills (Miranda & Enciso, 2023). The second most widely used artificial intelligence survey result is ChatGPT, and the third most commonly used is Quiziz. Using ChatGPT in learning offers many advantages, such as accessibility and personalization of learning, so it is beneficial for supporting the teaching and learning process and improving the student learning experience (Lee, Chen, Wang, & Huang, 2024).

Meanwhile, using Quizizz in learning offers many advantages, such as increased student engagement, immediate feedback, and broad accessibility (Gómez Pereyra García, Paz Montelongo, & Gutiérrez Fernández, 2021). The survey results inspired researchers to describe the transformation of 21st-century student learning styles using artificial intelligence. This research focuses on finding out how to use Canva, ChatGPT, and Quizizz to develop student's learning skills.

RESEARCH METHOD

This research design used survey and qualitative field methods at UIN K.H. Abdurrahman Wahid Pekalongan. The data source used in this research is final-year students because they have more experience learning to use various artificial intelligence technologies than new students. We used interviews and observation to carry out data collection techniques and instruments. Data collection, presentation, reduction, and conclusion are the data analysis techniques used. The first stage was data collection—identifying users of artificial intelligence technology by conducting surveys. The task required of the students was to select multiple commonly employed artificial intelligence technologies. The research survey included 106 final-year students from 3 classes of the mathematics study program (Cui, Wang, Ho, & Cambria, 2023). After the survey, researchers interviewed three students to describe their use of artificial intelligence technology (Adeoye-Olatunde & Olenik, 2021). Researchers used observation to carry out data collection techniques, apart from interviews. Researchers observed students using artificial intelligence technology during classroom learning (Dźwigoł & Barosz, 2020). The second stage was data presentation; interview results were coded (P), and observation coded (O). The third stage was data reduction. The researchers organized the results of student interviews and observations into three topics: Canva, ChatGPT, and Quizizz. Topic sorting aims to make data and information more accessible and understandable. The fourth stage was concluding. The results of the presentation of the three artificial intelligence technologies studied were then processed using various theories, and the final result was a conclusion (Ponce, Gómez-Galán, & Pagán-Maldonado, 2022).

RESULTS AND DISCUSSION

Based on the results of a survey of students, Canva is the artificial intelligence technology that is most widely used by students with 47. ChatGPT media is in second place with 45 users. The tool used least by students is Quizizz, which has 14 users. A slight difference between Canva and ChatGPT users means that most students use Canva and ChatGPT to support learning. The results of a survey of artificial intelligence users are shown in Table 1.

Table 1. Artificial Intelligence Users

Media	Users
Canva	47
ChatGPT	45
Quizizz	14
Total	106

Student Design Skills Through the Use of Canva

Canva is an online graphic design media that is very useful for helping students develop design skills (Cabrera-Solano et al., 2023). Research data showed that ″Canva is used to create various learning products, such as PowerPoint media and learning videos. These two products are used as material for presentations and discussions based on certain themes. Canva is used to create attractive presentation slides and can help with presentation skills and public speaking abilities. Canva has features that are easy to understand so that you can work on projects quickly″ (P.01). Canva has an intuitive and easy-to-learn interface. Students can quickly understand how to use various tools and features, allowing them to focus on creativity and design (Ilyas, Syarif, & Refnaldi, 2023 ; Putri & Jumardi, 2023). Canva provides a variety of templates and design elements that students can use for inspiration. Students study and modify Canva templates so that students can learn about layout, color schemes, typography, and other design elements (Irwanita, Neflinda, & Putri, 2023 ; Amri, 2023). Canva is helpful for students to learn and practice graphic design independently (Salam & Adam Mudinillah, 2021).

Canva provides a variety of tutorials and guides that help students develop collaboration skills. Per the information obtained, "The team created the PowerPoint using the Canva group feature. Each student identifies the material used as a proof point and then creates it in Canva. Canva has many features, and students can choose from various images. There are many databases; type the name of the image in the search menu, and various objects students are looking for will appear. Then the image selection is carried out according to needs" (P.02). Another opinion revealed "that Canva has many examples of projects created by other Canva users. This helps find Canva project ideas that students want to create" (P.03). Canva provides various tools and features that allow students to express their creativity (Husniyah, Tabroni, Fauzi, & Apriansyah, 2023). Students can create posters, presentations, infographics, and other visual media, encouraging innovation and creativity (Efendi, Putra, Hasibuan, & Siregar, 2023). This is due to the observation "that Canva helps students create design projects relevant to the

real world, such as logos, brochures, and social media content. This provides valuable practical experience and prepares them for future design challenges. Canva uses real-time collaboration, which is especially beneficial for group projects" (Q.01). Students can work together, share ideas, and edit designs simultaneously, which teaches them the skills of working in teams and collaborating (Ponomarenko, Kovalenko, & Shynkar, 2023 ; Vargas, Cabrera, & Cortez, 2022). Through Canva, students can learn various technical skills related to graphic design, such as using layers, image manipulation, and vector design tools (Lobanova, 2023). These technical skills are invaluable in many career fields. Canva helps students develop skills in creating engaging and effective presentations (Ponomarenko, Kovalenko, & Shynkar, 2023). Students can acquire the visual organization skills necessary for efficient communication in various contexts. Although Canva offers many learning benefits, some have negative impacts. Canva users may become too dependent on the templates and design elements provided by Canva, which can hinder the development of creative design skills. The benefits of students' design skills using Canva can be illustrated in Figure 1.
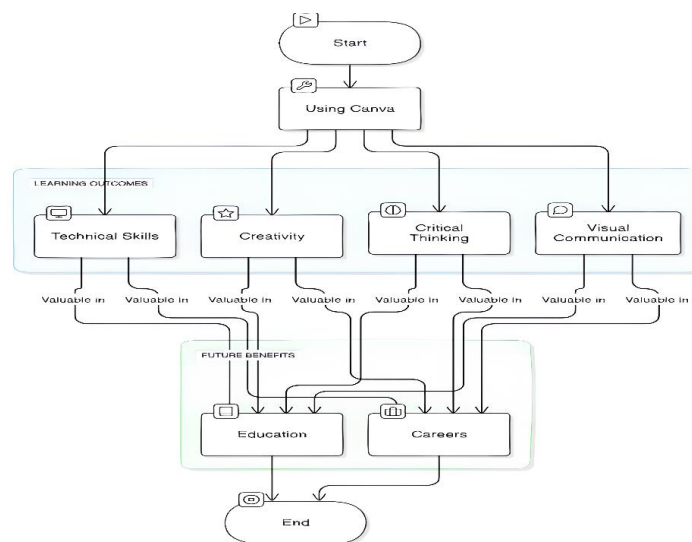

Figure 1. Student learning skills when using Canva

Canva is an online graphic design tool that helps develop learning skills, such as creativity, when students create attractive visual presentations. Canva services can encourage students to express their ideas creatively. Designing presentations usually involves solving problems, such as making complex information easy to understand or attracting the target audience's attention. In learning, students can use Canva to create group presentations, which can then be shared and presented, which helps improve public speaking skills. By utilizing Canva, students can develop skills that are useful not only in an academic context but also in the world of work.

Students' Digital literacy Skills via ChatGPTs

Using ChatGPT can develop students' digital literacy and communication skills in several significant ways (Lund & Wang, 2023). Based on interviews with students,

"ChatGPT is often used to find answers to questions from lecturers. The way to do this is by typing a question in ChatGPT, which ChatGPT will answer immediately. Students can ask questions about course topics and get relevant information to help with assignments and projects. ChatGPT can solve problems by providing step-by-step explanations" (P.04). Using ChatGPT, we can gain a better understanding of how artificial intelligence technology works, including natural language processing and machine learning. This information is essential for digital literacy in the modern era (Kayalı, Yavuz, Balat, & Çalışan, 2023). ChatGPT media can improve students' ability to adapt to new technology and utilize it effectively in learning. This is due to the observation "that ChatGPT can help students develop their writing skills by providing instant feedback on essays, reports, and other written assignments. Students can learn to write clearly and effectively through interaction with artificial intelligence. (Q.02). ChatGPT can be interpreted as dialogue-based learning, improving students' communication skills (Davy, Tan, & Leung, 2024). Students can learn to ask good questions, elaborate on their ideas, and interact with artificial intelligence systems in meaningful conversations. The ChatGPT service system is illustrated in Figure 2.
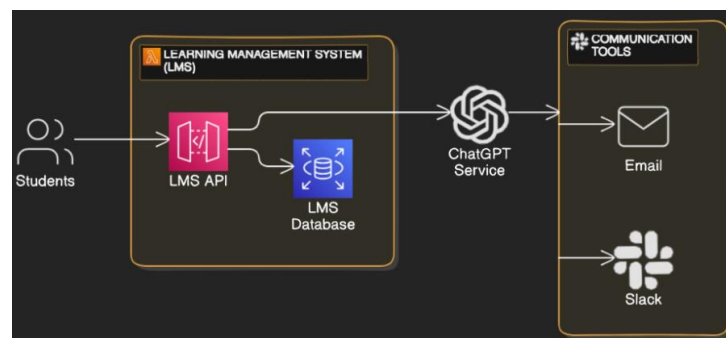

Figure 2. Student learning skills when using ChatGPT

Students can use ChatGPT to search for information and get explanations on complex topics. "Students use ChatGPT to search for sources or discussion material. It is because discussion topics are posed on chatGPT, and then the results are understood as a basis for arguing or expressing opinions during the discussion. Sometimes, ChatGPT results are not directly used; they must be processed by analyzing ChatGPT results. This is to adjust the discussion topic problem" (P.05). Another opinion "explains that ChatGPT is sometimes used to find ideas for education. When students have difficulty finding ideas, ChatGPT can help the student find answers to several alternative ideas they want" (P.06). ChatGPT helps students develop better research skills and the ability to evaluate and interpret information, so ChatGPT can improve student reading skills by support them understand the answers given by artificial intelligence (Livberber & Ayvaz, 2023) . Students learn to interpret and evaluate texts critically. Students are encouraged to think critically when interacting with ChatGPT, especially when assessing the answers and deciding whether the information is accurate and relevant. ChatGPT helps students develop critical analytical skills. ChatGPT can brainstorm ideas, write stories, or create other creative content. ChatGPT can be used to facilitate in-depth discussions about

specific texts. ChatGPT can serve as a debate partner that provokes students to develop and defend their arguments, for example, by providing opposing arguments to test. Students can learn to identify logical argument errors and discuss how they can be strengthened or refuted. ChatGPT helps students develop their creativity and learn how to organize and convey ideas excitingly (Punar Özçelik & Yangın Ekşi, 2024). The use of ChatGPT in learning also has the potential to cause several negative impacts. Users may become too dependent on ChatGPT to answer questions or complete tasks, reducing their ability to think critically and solve problems independently. ChatGPT can provide a lot of information at once, confusing students and making it difficult for them to filter out the most relevant and helpful information. It is possible to minimize the negative consequences of using ChatGPT for learning with a wise and balanced approach. This tool can become a valuable asset in supporting the educational process.

Quizizz Integration for Learning Evaluation

Quizizz is an interactive learning platform that can effectively develop students' critical thinking skills (Asfar & Asfar, 2020). The results of interviews with students showed the integration of Quizizz in learning was used when they wanted to create interactive questions aimed at their friends. Students can interact directly with the material through various questions, such as multiple-choice questions, short answers, and others. You may modify the questions to fit your needs and preferred level of difficulty. Quizizz is usually used after a paper presentation (P.07). Quizizz can design questions that require analytical and evaluative thinking. Questions can include case analysis, argument assessment, and applying concepts in real-life situations, encouraging students to think more deeply and critically (Zhao, 2019). Quizizz enables competition-based learning that motivates students to think quickly and precisely. This healthy competition can stimulate their critical thinking skills when answering questions correctly and within a limited time (Orhan Göksün & Gürsoy, 2019; Pham, 2023). With the instant feedback provided by Quizizz, students can immediately know the correct answer and the reason. This helps students understand their mistakes and encourages critical reflection on their thinking processes (Rodríguez, Mezquita, & Vallecillo, 2019).

Quizizz provides a detailed analysis of student performance that lecturers can use to identify areas that need improvement (Gursoy & Goksun, 2019). ʺWhen students answer a Quizizz question incorrectly, Quizizz will tell you the correct answer. Questions using Quizizz will motivate students to answer. Moreover, the question is addressed to all students in the class, so they will scramble to answer first. The quiz can also be designed with a scoring system so that each student or group competes to get the highest scoreʺ (P.08). Lecturers can use score data to design additional learning activities that target critical thinking skills (Janković, Maričić, & Cvjetićanin, 2024 ; Ccoa, Choquehuanca, & Paucar, 2023). ʺAlthough quizzes are generally used to answer multiple-choice questions, lecturers can also use an open-question format to encourage discussion. After Quizizz, students can be encouraged to discuss their answers, why they chose answers, and how they discovered learning problems.ʺ (Q.03). Quizizz can create simulations or scenarios that require problem-solving and decision-making (Zuhriyah & Pratolo, 2020). Quizizzes

can be applied in team mode, where students work together to answer questions. This collaboration helps students learn to think critically as a group, discuss multiple perspectives, and reach decisions. Using diverse types of questions, such as multiple choice, true/false, matching, and short essays, can stimulate different aspects of critical thinking. It helps students think differently and explore various problem-solving approaches (Janković & Lambić, 2022). Using Quizizz for learning has several potential benefits but can also have several negative impacts. Students may focus more on the competition or game aspect than on understanding the concept. So, it can reduce their focus on substantial learning. Students may feel tempted to copy answers from friends or search for answers unfairly, especially in less supervised settings. With a thoughtful and integrated approach, Quizizz can be valuable in supporting learning, motivating students, and interactively testing their understanding. The benefits of Quizizz integration for learning evaluation are presented in Figure 3.
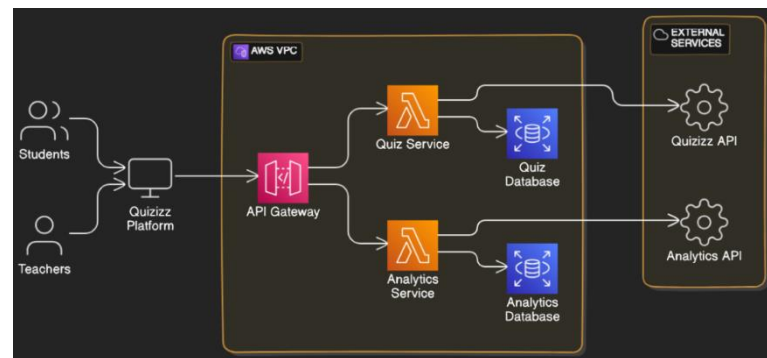

Figure 3. Student learning skills when using Quizizz

Lecturers can use Quiziz when evaluating their students. Apart from that, students can also use Quiziz when evaluating discussions with their friends. Quizizz integration in learning using API Gateway. API Gateway is a single gateway that manages all incoming user requests to various inquiry services. Quizizz users retrieve questions from a database based on specific parameters (for example, difficulty level, category, or topic). This service analyzes data generated from the use of Quizizz. Analysis Services Evaluate the effectiveness of questions based on the difficulty level and students' success in answering them. This database stores all analytical data from Quizizz, such as student performance reports.

Artificial Intelligence Technology in Modern Learning

Artificial Artificial intelligence technology has become an essential component of modern learning. The way students study has changed due to artificial intelligence with its ability to process big data, analyze patterns, and provide personalized responses. Artificial intelligence enables personalized learning models, and students receive a learning experience tailored to their needs and learning styles. Learning systems can analyze data from student activities and provide recommendations for materials or methods most suitable for each individual (Shahzad, Xu, Lim, Yang, & Khan, 2024; Walter, 2024). Artificial intelligence can provide instant help and feedback to students anytime

and anywhere. Artificial intelligence can answer questions, provide additional explanations, and direct students through discussion material in a friendly and responsive manner. Artificial intelligence can automatically grade assignments and exams, including essays and open-ended answers. Artificial intelligence can reduce lecturers' workload and provide students with fast feedback. The system can also notice patterns and trends in student performance to identify areas where students need additional help. Artificial intelligence can adapt material and difficulty levels to each student's progress. Artificial intelligence ensures that students are provided with challenges appropriate to the student's skill level, maximizing learning efficiency (Filgueiras, 2023; Vasanth & Swamy, 2013)

Artificial intelligence can analyze data to predict student performance and identify students who need additional help. By monitoring student progress in real-time, lecturers can provide the right interventions at the right time to help students reach their potential (Ouyang & Jiao, 2021). Artificial intelligence has been used to develop educational games that interact with students and stimulate learning through challenges, points, and levels. That makes learning more exciting and motivates students to engage more deeply in learning (Doroudi, 2023; Nguyen, Ngo, Hong, & Dang, 2023). Artificial intelligence can be used to analyze, organize, and present educational content in a format that is easy for students to understand, such as by summarizing material, translating text, and filtering relevant information from diverse sources. Artificial intelligence can create immersive and interactive learning experiences (Adams, Pente, & Lemermeyer, 2023; Hopcan, Polat, & Ozturk, 2023). Artificial intelligence allows students to experience the concepts taught in a more accurate and engaging context. So, it reduces lecturers' administrative tasks and allows students to focus on effective teaching (Bittencourt, Chalco, & Santos, 2023).

CONCLUSION

Students use the development of artificial intelligence to aid in the learning process. Developing critical thinking skills with AI can be done through various approaches that harness the power of technology to create interactive, adaptive, and challenging learning experiences. Using Canva is not only for learning technical graphic design skills but also for developing creativity, critical thinking abilities, and visual communication skills that will be valuable in students' future education and careers. Integrating ChatGPT into the learning process can help students develop more vital digital literacy and better communication skills. Integrating Quizizz into learning can involve activities that stimulate critical thinking and improve students' analytical, evaluative, and reflective skills so that the learning process is more interactive, engaging, and effective in developing critical thinking skills. Integrating artificial intelligence technology into modern learning can create a more efficient, effective, and inclusive learning experience for students. Artificial intelligence helps prepare future generations to face complex challenges in an increasingly connected and rapidly changing society.

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