The Impact of Artificial Intelligence Intervention on the Readiness of Universitas Terbuka Students to Face the Challenges of the Society 5.0 Era

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Abstract
This study explores the role of Artificial Intelligence (AI) in preparing students of Universitas Terbuka (UT) to face the challenges of the Society 5.0 era. Using a qualitative descriptive approach, interviews and observations were conducted to assess students' understanding of AI and Society 5.0, their use of AI in learning, and their readiness to adapt to technological changes. The results indicate that while some students have begun to use AI in their learning processes, its optimal utilization remains limited. Students who actively engage with AI tend to be more prepared for digital challenges, particularly in mastering new skills relevant to Society 5.0. This study highlights the importance of enhancing training, strengthening collaboration, and providing practical examples of AI implementation to ensure students are better equipped to navigate future digital transformations.

Keywords: Society 5.0 Era, Artificial Intelligence Intervention, Student Readiness, Universitas Terbuka

1. Introduction

The development of Artificial Intelligence (AI) technology has brought significant transformation across various sectors, including education. In the Society 5.0 era—where digital and physical technologies are integrated to enhance the quality of human life—AI plays a crucial role in creating more adaptive and personalized learning experiences (Putri, 2023).. This is particularly relevant for students at Universitas Terbuka (UT), many of whom are working professionals who require flexibility in their learning process. The integration of AI in education has the potential to improve the efficiency, effectiveness, and accessibility of learning for UT students.

Society 5.0 demands individuals to possess strong technological competencies, particularly in the use of AI (Ziatdinov, 2024). UT students, who are predominantly adult learners, must be equipped to navigate a rapidly evolving job market that increasingly relies on technological expertise. AI intervention in education can support this transition by offering tailored learning experiences, such as personalized content delivery and faster feedback mechanisms, thereby aligning educational outcomes with individual learning needs.

Moreover, AI facilitates the creation of learning environments that nurture critical and creative thinking—skills that are highly valued in today's workforce. Technologies such as AI-based tutoring systems, adaptive learning applications, and virtual reality simulations provide

immersive and interactive learning opportunities (George, 2024), helping to better prepare UT students for competition in the digital era.

Despite these advantages, several challenges must be addressed. Concerns related to data privacy and algorithmic bias present serious risks, especially in ensuring that AI does not unintentionally marginalize certain student groups (Deora, 2024). Given the diverse social and geographical backgrounds of UT students, safeguarding against the digital divide is imperative.

Infrastructure limitations and varying levels of digital literacy also pose significant barriers (Karagul, 2021). Many UT students reside in remote areas and may lack sufficient access to the technological tools necessary to support AI-enabled education. As such, systemic efforts are needed to ensure equitable access to AI resources for all students.

The integration of AI also necessitates a rethinking of tutoring methods. Educators at UT must be adequately trained and prepared to incorporate AI tools into the curriculum effectively (George, 2024). This involves not only professional development but also a broader institutional commitment to adapting pedagogical strategies in line with technological advancements.

While AI holds tremendous potential, its success in enhancing student readiness for Society 5.0 depends on the presence of clear, transparent, and accountable policy frameworks. Developing governance structures that guide AI implementation in education is crucial to ensuring positive and equitable outcomes for all learners (Chmielinski, 2024).

Although Universitas Terbuka has shown a strong commitment to integrating technology in its distance learning model, significant gaps remain. Students frequently struggle to incorporate advanced technologies into their study routines, limiting their ability to compete in the global workforce (Karakolis, 2022). In this context, AI intervention presents a promising solution to improve both learning experiences and educational effectiveness—provided that it is implemented through well-designed and context-appropriate strategies.

Additionally, mastering digital skills is fundamental to preparing students for Society 5.0. These skills go beyond technical proficiency and include critical and creative thinking required for adapting to change (George, 2024). Therefore, it is essential for educational institutions to continuously evaluate and update curricula and tutoring methods to stay aligned with contemporary demands.

The gap between students' technological competencies and the expectations of industry further underscores the need for targeted and strategic interventions. Without proper preparation, students may struggle to access employment opportunities, thereby compromising their future careers. A deep understanding of how AI can be effectively applied in educational settings is therefore a critical first step in equipping students with relevant and future-ready skills.

Thus, this study aims to explore how AI intervention can enhance the readiness of Universitas Terbuka (UT) students in facing the challenges of the Society 5.0 era, and to provide recommendations for the development of adaptive and responsive educational policies that align with the evolving needs of the labor market.

2. Research Method

This study employed a qualitative approach using a case study method. This method was chosen to gain an in-depth understanding of the experiences and perspectives of Universitas Terbuka (UT) students in using Artificial Intelligence (AI) technology within their educational context. The participants in this study were UT students who had experience utilizing AI in their learning processes.

Participants were selected using purposive sampling, involving individuals deemed to have rich and relevant information for the research. Data collection techniques included interviews and observations. These were conducted with students to explore their collective perspectives on AI intervention and how it affects their readiness to face the challenges of the Society 5.0 era.

The collected data were analyzed using thematic analysis. The process included interview transcription, data coding, and the identification of key themes that emerged from the data. To enhance the validity of the findings, triangulation techniques were applied.

To ensure the accuracy and credibility of the data, member checking was conducted, allowing participants to review their interview transcripts and provide feedback. In addition, field notes and researcher reflections were incorporated to increase transparency throughout the research process.

3. Results and Discussions

This study aims to explore how AI intervention can enhance the readiness of Universitas Terbuka (UT) students in facing the challenges of the Society 5.0 era. Based on data collected through observation using a checklist technique administered to 100 UT students, the following results were obtained:

Table 1. Use of AI in Learning Among Universitas Terbuka (UT) Students

Observation Indicator	Yes (Count)	No (Count)	Remarks
Students actively participate in discussions involving AI	60	40	Participation varies; some students are more active than others.
Students use AI applications for assignments or presentations	55	45	Usage is limited to certain tasks; commonly used apps include ChatGPT, Google Assistant, Grammarly, Canva, Mendeley, CapCut.
There is positive interaction between students and tutors regarding AI	50	50	Interaction mostly focuses on technical aspects; lacks deeper discussion on impact or benefits.
Students show enthusiasm toward using AI	65	35	Some students show interest, though not all.
AI use appears to facilitate understanding of the material	58	42	Some students feel helped, but others struggle.
Students are able to explain how to use the AI tools they employ	45	55	Many students still require guidance in using AI tools effectively.
Use of AI-related tools (hardware/software) is observed	70	30	Most use laptops, though not universally.
Students provide feedback on the effectiveness of AI usage	55	45	Feedback varies; requires further analysis.
Collaboration among students in using AI is present	40	60	Collaboration remains low; students often work independently.
Tutors provide clear guidance on AI usage	75	25	Instructions are generally clear, though sometimes lack detail.
Average (%)	**57**	**42.7**	

The observation results indicate that the percentage of AI usage in learning among Universitas Terbuka (UT) students falls within a moderate category. Students demonstrated varying levels of participation and enthusiasm, with several indicators requiring greater attention to enhance their understanding and effective use of AI. For a clearer illustration, refer to the following chart:

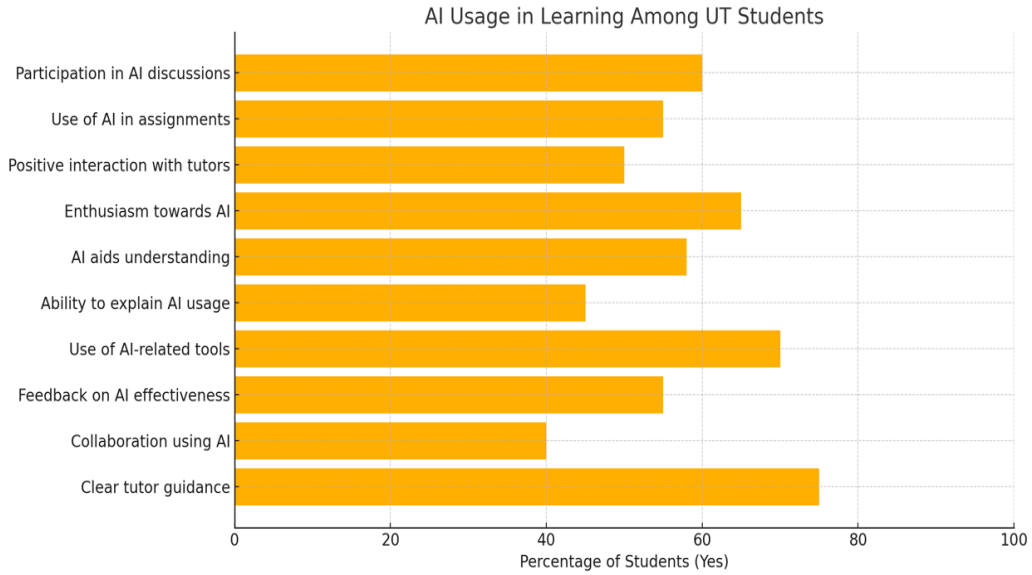

Figure 1. Percentage of AI Usage in Learning Among Universitas Terbuka (UT) Students

These findings provide a general overview of the challenges and opportunities in the implementation of AI among Universitas Terbuka (UT) students, and can serve as a foundation for developing more effective strategies for AI integration in learning (Owoc, 2021; Rahayu, 2023). Based on the overall calculation of average AI usage in learning, it was found that approximately 57.3% of students are engaged in various aspects of AI utilization, while 42.7% remain less active or encounter obstacles. The following chart illustrates the average percentage of AI usage in learning among UT students:

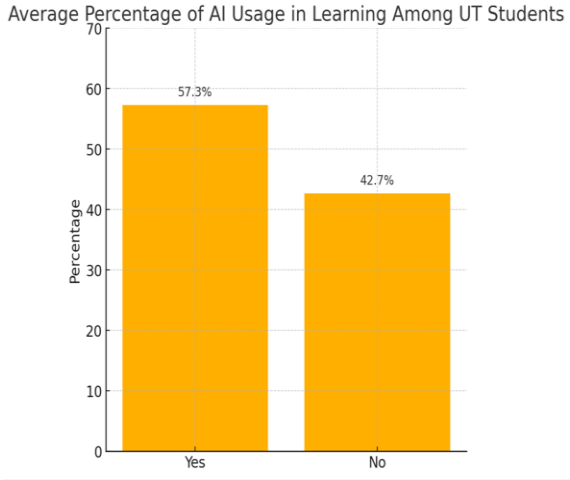

Figure 2. Average Percentage of AI Usage in Learning Among Universitas Terbuka (UT) Students

Based on these results, it is evident that the majority of students have begun to utilize AI in their learning. However, challenges remain in terms of understanding, interaction, and collaboration, which need to be improved through further guidance and skill development.

Following the checklist-based observation, the researcher conducted direct interviews with several Universitas Terbuka (UT) students. Regarding the first indicator, it was found that student participation in discussions involving AI varied. While some students recognized the benefits of AI-supported discussions, others preferred independent learning with AI tools. Meanwhile, a number of students expressed enthusiasm in contributing to group discussions.

An interview excerpt illustrates this variation:

> *"I find discussions involving AI to be very beneficial for learning. For example, when we use AI to search for information, the discussions become more engaging and focused. However, I notice that not all of my classmates actively participate. Some prefer to study independently with AI assistance rather than engage in discussions. Perhaps some of them feel shy or lack confidence when speaking in front of others." (Mutia Alkhansha, UT Student – Bandar Lampung, October 6, 2024).*

Based on the interview findings, enhancing student participation in AI-integrated discussions requires the creation of an inclusive and supportive classroom environment (Salas-Pilco, 2022), where students feel safe to express their opinions. Tutors should offer emotional support and gradually encourage students who are shy or hesitant to speak (White, 2022; He, 2024). Implementing collaborative learning techniques can help students share their ideas in small groups before speaking in front of the entire class. AI can also be utilized to facilitate discussions, for instance by generating group questions or prompts. Providing positive feedback to participating students and offering training on effective AI usage may further build their confidence (Brandon, 2021; Delfino, 2019). Additionally, incorporating AI-based icebreaker activities can help students feel more at ease before the discussion begins (Verma, 2011).

Furthermore, AI intervention can enhance the readiness of Universitas Terbuka (UT) students to face the challenges of the Society 5.0 era. Regarding the second indicator, data revealed that some students use AI applications to support their assignments and presentations. However, there is also an awareness of the importance of maintaining creative thinking and not becoming overly dependent on technology. This balance is reflected in the following interview excerpt:

> *"I use several AI applications such as Grammarly to check grammar and ChatGPT to generate new ideas for my assignments. AI is very helpful, especially when deadlines are approaching and I need to complete my work quickly. However, I also feel that sometimes I rely too much on this technology. I want to be more creative and not just depend on AI to come up with ideas. So, I try to strike a balance between using AI and thinking critically on my own." (Rohimatus Solehah, UT Student – Bandar Lampung, October 6, 2024).*

These findings indicate that students need to strike a balance between using AI applications such as Grammarly and ChatGPT and developing their own creativity and critical thinking skills (Vincent-Lancrin, 2020; Reddy, 2022; Rong, 2022). It is important for students to set boundaries in their use of AI, such as limiting it to grammar checking or generating initial ideas only (Bonner, 2023). Additionally, students are encouraged to explore ideas independently before turning to AI tools and to participate in creativity training programs (Eapen, 2023; Ivcevic, 2024). Reflecting on their learning process after using AI is also essential for evaluating its impact on their learning outcomes (Pretorius, 2023; Bozkurt, 2023).

Another indicator for assessing whether AI intervention can enhance the readiness of Universitas Terbuka (UT) students to face the challenges of the Society 5.0 era is the presence of positive interaction between students and tutors regarding AI. The data revealed that such interactions do occur, with tutors providing guidance and sharing personal experiences related to the use of AI. However, students expressed a desire for more concrete examples to deepen their understanding. This is illustrated by the following interview excerpt:

> *"The interaction between students and tutors regarding AI is quite positive. Tutors often provide guidance on how we can use AI effectively in our learning. They don't just explain how to use the tools, but also share their own experiences. I find this very helpful, especially when we face challenges in using AI. However, I do hope that tutors can offer more concrete examples that we can follow." (Hernanda Aditia, UT Student – Bandar Lampung, October 6, 2024).*

The interview results indicate that, despite the generally positive interaction between students and tutors, there is a need for students to request more concrete examples of AI application in the learning process (Escalante, 2023; Hutt, 2024). While tutors can continue to provide guidance and share personal experiences, the inclusion of practical and relatable examples would be more effective in helping students navigate the challenges of using AI in their studies.

For the fourth indicator, the data revealed that students generally demonstrated a high level of enthusiasm toward the use of AI in learning. However, they also recognized the importance of gaining a deeper understanding in order to utilize AI effectively in their academic activities. This insight is reflected in the following interview excerpt:

> *"I'm very enthusiastic about using AI in learning. When I see how AI can speed up the learning process and help me better understand the material, I feel more motivated. Sometimes I even spend extra time exploring new AI applications. However, I also feel the need to learn more deeply about how to use AI effectively. If I could understand how it works better, I'm sure it would be very helpful in my learning process." (Nurlita Baiti Jannah, UT Student – Bandar Lampung, October 6, 2024).*

The interview findings suggest that both students and tutors need to deepen their understanding of how to use AI effectively in the learning process (Kashive, 2020; Markus, 2024). Although enthusiasm for AI is high and new applications can accelerate the learning process, a more comprehensive understanding is essential to ensure optimal use of AI in enhancing subject mastery.

For the fifth indicator, the interview data revealed that AI generally helps students better understand the learning material, although there remains a need for direct guidance from tutors in certain cases. This is reflected in the following student's statement:

> *"I feel that using AI really helps me understand difficult material. For example, when I don't understand a concept, I can use AI to get additional explanations or alternative examples. AI gives me faster and broader access to information. However, I sometimes feel that AI cannot fully replace tutor guidance. Some things are just easier to grasp through direct explanation." (Yoga Pratama, UT Student – Bandar Lampung, October 6, 2024).*

The interview findings indicate that students should utilize AI to obtain additional explanations and quick access to information; however, they must also rely on tutor guidance to grasp more complex concepts. This combination of AI support and human instruction can enhance their ability to better understand difficult material. The readiness of UT students to face the challenges of the Society 5.0 era through AI utilization is also evident from interview results indicating that most students are generally able to explain how to use the AI applications they regularly engage with. However, they also acknowledge that there are features they have yet to explore, and that further training could enhance their understanding. This is reflected in the following statement:

> *"I feel fairly confident in explaining how to use AI, especially the applications I use frequently like Canva and Grammarly. I often share tips with my friends on how to use these tools. However, I also realize there are many features I haven't fully explored. Sometimes I get confused when there's a new update to the apps I use. I believe additional training from tutors would be very helpful." (Hernanda Aditia, UT Student – Bandar Lampung, October 6, 2024).*

Students noted that many features of AI applications remain unfamiliar to them, and they often feel confused by updates. Recommended follow-up actions include organizing additional training sessions facilitated by tutors to help students better understand new features of commonly used AI tools. In addition, regular briefings on application updates should be provided to keep students informed. Creating forums or discussion groups is also essential, allowing students to share tips, experiences, and challenges in using AI applications. Supplementary resources such as online tutorials or instructional videos should be made available to support independent exploration of new features (Bye, 2017). Finally, surveys or evaluations can be conducted to

collect feedback from students on the training provided and to assess their ongoing needs related to AI usage.

The next indicator used to assess the readiness of Universitas Terbuka (UT) students in facing the challenges of the Society 5.0 era through AI utilization involved questions regarding the use of supporting tools (hardware/software) related to AI. The following interview excerpt illustrates the students' reliance on such tools:

> *"I always use a laptop and smartphone to access various AI applications. Without these devices, I would struggle to use AI effectively. Most of my classmates also use laptops for their assignments. However, I believe internet connectivity is the key factor; without it, all AI applications become useless. Sometimes, when the internet connection is slow, it really disrupts our learning process." (Yoga Pratama, UT Student – Bandar Lampung, October 6, 2024).*

Based on the interview findings, both students and tutors need to ensure the availability of essential devices (Owoc, 2021), such as laptops and smartphones, to effectively access AI applications. In addition, maintaining a stable internet connection is crucial, as internet speed can significantly affect the learning process. Tutors are also expected to provide support in optimizing AI usage to ensure more effective and engaging learning experiences.

Furthermore, in assessing the readiness of Universitas Terbuka (UT) students to face the challenges of the Society 5.0 era through AI utilization, the data show that students tend to provide positive feedback regarding the effectiveness of AI. However, they also acknowledge the importance of verifying the information provided by AI and express the need for support from tutors. This perspective is reflected in the following interview excerpt:

> *"I give positive feedback on the use of AI in learning. AI helps me complete assignments more quickly and efficiently. However, I also feel that sometimes AI provides inaccurate information. Therefore, even though I appreciate the assistance AI offers, I always cross-check the information with other sources. Feedback from lecturers is also very important to improve how we use AI." (Rohimatus Solehah, UT Student – Bandar Lampung, October 6, 2024).*

Students should continue to provide positive feedback regarding the use of AI in learning (Hutt, 2024), as it helps them complete tasks more quickly and efficiently. However, they must remain critical of the information generated by AI, given the potential for inaccuracies. Therefore, it is essential to verify information using alternative sources. In addition, students should actively seek feedback from tutors, as such input can help them better understand how to utilize AI effectively and refine their learning strategies. In doing so, they can improve their academic outcomes while optimizing the use of AI.

The study also found that collaboration among students in the use of AI remains limited, although there are some efforts to share experiences. Increasing the number of group-based activities could encourage more effective collaboration in utilizing AI, as illustrated by the following interview excerpt:

> *"I've noticed some collaboration among classmates in using AI, but it's still quite limited. We often discuss how to use AI applications and share our experiences. However, many of us prefer working individually because it feels faster. I hope there will be more group activities involving AI so we can learn together. I believe collaboration can enhance our understanding of AI." (Yoga Pratama, UT Student – Bandar Lampung, October 6, 2024).*

The interview results suggest that students need to enhance collaboration in using AI by engaging in more group activities that involve discussion and shared learning (Ito, 2021; Kueper, 2024). Although students already share experiences and discuss AI applications among themselves, more structured collaboration could significantly improve their understanding. Tutors are also encouraged to facilitate more group-based activities involving AI, allowing students to learn from one another and develop collaborative skills. In doing so, the overall learning experience can become richer and more comprehensive.

Further data collection aimed at understanding whether AI intervention can enhance the readiness of Universitas Terbuka (UT) students to face the challenges of the Society 5.0 era involved asking students about the guidance provided by tutors on AI usage. The following interview excerpt highlights a student's perspective:

> *"I feel that the tutor gives fairly clear guidance on how to use AI. They explain the benefits and risks that we need to be aware of when using AI. However, sometimes the instructions still feel too general and lack detail. I hope the tutor can provide more practical examples so we can better understand how to apply AI. This would really help us in putting what we've learned into practice." (Hernanda Aditia, UT Student – Bandar Lampung, October 6, 2024).*

The interview findings indicate that tutors need to provide more detailed and concrete guidance on the use of AI in learning. While the existing instructions are generally clear, students expect tutors to present more practical examples and case studies to clarify how AI can be applied in real learning contexts. By offering specific illustrations, students will better understand both the benefits and risks of AI usage. Furthermore, more intensive interaction between tutors and students in discussions about AI integration will help improve students' understanding and skills in applying the knowledge they have gained.

Based on the interview findings regarding how AI intervention can enhance the readiness of Universitas Terbuka (UT) students in facing the challenges of the Society 5.0 era, the following conclusions can be drawn:

1. Active Participation: While most students actively participate in AI-related discussions, some prefer independent learning. Therefore, it is important to encourage greater involvement through group-based activities.
2. Use of AI Applications: Students utilize various AI tools for assignments and presentations; however, their use remains limited. Additional training and exposure to relevant AI applications are needed to enhance their skills.
3. Positive Interaction: Interactions between students and tutors are generally positive, though there is room for improvement in providing more practical examples and concrete case studies.
4. Enthusiastic Attitude: Students display enthusiasm toward using AI but also recognize the importance of understanding how to use it effectively to foster creativity.
5. Comprehension of Material: AI helps students understand difficult content, but tutors still need to provide direct explanations for deeper conceptual understanding.
6. Ability to Explain: While some students are confident in explaining how to use AI, many have not fully explored available features, indicating a need for further training.
7. Supporting Tools: Most students use devices such as laptops and smartphones to access AI tools, but a reliable internet connection is crucial for effective use.
8. Feedback: Student feedback on the effectiveness of AI use varies, highlighting the need for further analysis to better understand their needs and preferences.
9. Collaboration: Collaboration among students in using AI is still limited. Increasing group activities involving AI can improve shared understanding and peer learning.
10. Guidance from Tutors: Tutor instructions on AI usage are generally clear, yet there is a need for more detailed guidance and practical examples to help students better apply AI in their studies.

Overall, AI intervention holds significant potential to enhance the readiness of Universitas Terbuka (UT) students in facing the challenges of the Society 5.0 era. However, further efforts are required in the areas of training, collaboration enhancement, and the provision of more in-depth guidance from tutors to ensure that AI is utilized more optimally and effectively within the learning process.

4. Conclusion

This study concludes that the use of Artificial Intelligence (AI) has a positive impact on the learning process. Students show enthusiasm toward AI applications that assist them in understanding course materials and completing assignments. However, several challenges remain, including low levels of active participation in group discussions, a tendency to rely on AI without fostering creativity, and the need for more detailed guidance from tutors. Therefore, AI

interventions can be optimized through enhanced training, stronger collaboration, and the provision of practical examples in its application.

These findings align with the aim of the study—to understand how AI intervention can improve students' readiness to face the challenges of the Society 5.0 era by promoting more effective use of technology and supporting the development of relevant skills.

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