Enhancing Interpersonal Communication through the Use of ChatGPT and AI: A Case Study on Improving Communication Quality in Online Learning Environments in Lampung

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Abstract

This study aims to explore the role of ChatGPT and artificial intelligence (AI) in improving the quality of interpersonal communication in an online learning environment. The case study was conducted on an online learning platform that provides chat features and an AI chatbot. The study used a mixed method, with data collected through surveys and structured interviews of 30 online course participants. The results showed that the use of ChatGPT and AI in interpersonal communication can improve the quality of communication between course participants. In addition, course participants find it more convenient and easy to communicate with an AI chatbot than with fellow course participants. These findings suggest that ChatGPT and AI can be effective tools for improving the quality of interpersonal communication in an online learning environment, especially when interacting with strangers or in less comfortable situations. The study provides insight into how technology can be harnessed to improve social interaction in an educational context.

Keywords: *Interpersonal Communication, ChatGPT, AI*

Introduction

Online education has become increasingly popular in recent years. (Hashlamoun, 2021; Muniasamy, 2020; Tick, 2021; Vate-U-Lan, 2018; You, 2022) However, one of the main challenges in an online learning environment is the lack of social interaction between course participants.(Conrad, 2022; Joshi, 2022; Kalmar, 2022; Wigfield, 2022; Zarcone, 2022) In most cases, course participants can only communicate through online learning platforms (Ahshan, 2021; Cooke, 2022; Hettiarachchi, 2021; Rizvi, 2021; Yang, 2021) which is sometimes inadequate to express ideas and emotions effectively.(Conrad, 2022; Dinh, 2020; Enadula, 2021; Espino, 2021; Hettiarachchi, 2021) To overcome this challenge, ChatGPT technology (Aczel & Wagenmakers, 2023; Adesso, 2023; Aljanabi, 2023; Aljanabi dkk., 2023; Alkaissi & McFarlane, 2023; Al-Worafi dkk., 2023) and artificial intelligence (AI) (Adesso, 2023; Baidoo-Anu & Ansah, 2023; Chen, 2023; Man, 2023) can be utilized to improve the quality of interpersonal communication in an online learning environment. ChatGPT is a generative machine learning model that generates text that looks like it was written by a human, while AI can be used to develop chatbots that can be used as communication aids.

However, there have not been many studies studying the use of ChatGPT technology and AI in improving social interaction in online learning environments. Therefore, this study aims to explore the role of ChatGPT and AI in improving the quality of interpersonal communication between course participants in an online learning environment.

The case study was conducted on an online learning platform that provides chat features and AI chatbots. This study collected data through surveys and structured interviews of 30 online course participants. This study aims to provide insight into how ChatGPT and AI technologies can be leveraged to improve social interaction in educational contexts. Lack of social interaction in an online learning environment can hinder learning and leave course participants feeling isolated. Therefore, increased social interaction between course participants can help improve the quality of learning and increase course participants' satisfaction with the online learning experience.

The use of ChatGPT technology and AI in an online learning environment can provide solutions to improve social interaction between course participants. ChatGPT can be used to generate text similar to human text, helping course participants to communicate more naturally and effectively in an online learning environment. AI can be used to develop chatbots that can assist course participants in navigating the learning platform and providing answers to frequently asked questions. However, there have not been many studies studying the use of ChatGPT and AI in improving the quality of interpersonal communication in online learning environments. Therefore, this research is expected to make an important contribution to filling knowledge gaps in this field and providing insight into how technology can be utilized to improve social interaction in an educational context. In this study, the authors will focus on using ChatGPT and AI to improve the quality of interpersonal communication between course participants in an online learning environment. In this case study, course participants will gain experience interacting with an AI chatbot integrated into an online learning platform. Data will be collected through surveys and structured interviews of course participants to evaluate the effectiveness of using these technologies in improving social interaction and quality of learning.

Hung, H. T. (2019). Enhancing Interpersonal Communication Skills in Online Learning: An Empirical Study. Interactive Learning Environments, 27(3), 364-377. This study was conducted to evaluate the impact of using interpersonal communication-based learning strategies on improving students' interpersonal communication skills in an online learning environment. The results showed that the use of this strategy can significantly improve students' interpersonal communication skills, including the ability to listen, express opinions, and understand the views of others.

Hsiao, K. Y., Chang, C. S., Lin, C. Y., &; Huang, Y. M. (2020). Investigating the Factors Affecting the Continued Use of MOOCs: A Unified Perspective of Task Technology Fit and Interpersonal Communication. Interactive Learning Environments, 28(6), 832-845. This study aims to evaluate the factors influencing the continuous use of Massive Open Online Courses (MOOCs), focusing on Task Technology Fit (TTF) and interpersonal communication. The results showed that TTF and interpersonal communication had a significant positive impact on the sustainable use of MOOCs.

Chen, Y. L., Huang, H. Y., &; Lin, Y. L. (2019). An Intelligent Tutoring System with an Emotional Chatbot for Enhancing EFL Learners' Motivation, Learning Outcome and

Social Presence. Journal of Educational Technology &; Society, 22(3), 176-191. This study aims to evaluate the effectiveness of intelligent learning systems with emotional chatbots in improving learning motivation, learning outcomes, and the social presence of students learning English as a foreign language. The results showed that the use of this system can significantly improve students' learning motivation, learning outcomes, and social presence. Lai, C. L., &; Lin, H. C. (2019). The Effects of Computer-mediated Communication on Student Interaction, Learning, and Satisfaction in Collaborative Learning. Educational Technology &; Society, 22(4), 189-201. This study aims to evaluate the effects of communication through computer media on student interaction, learning, and satisfaction in collaborative learning. The results showed that the use of computer media in communication can improve student interaction and learning, as well as improve student satisfaction with their learning experience

Method

This study used a quantitative approach with an experimental design of pretest-posttest control groups consisting of two groups, namely the experimental group and the control group. This research was conducted in an online learning program in the field of business management which was attended by undergraduate students. In this study, the experimental group used chatbot technology equipped with artificial intelligence to improve interpersonal communication in online learning, while the control group used conventional online learning methods that did not use chatbot technology. Data was collected through two research instruments, namely questionnaires, and tests. Questionnaires were used to measure students' perceptions and satisfaction with the use of chatbot technology and artificial intelligence in online learning, while tests were used to measure students' interpersonal communication skills. Before the study was conducted, pretests were conducted on both groups to measure their initial interpersonal communication skills. After that, the experimental group received treatment using chatbot technology and artificial intelligence in online learning, while the control group did not receive the treatment.

After the learning program was completed, posttests were conducted on both groups to measure their interpersonal communication skills. Data obtained from questionnaires and tests were analyzed using statistical techniques such as variance analysis (ANOVA) and t-tests. This study is a comprehensive study because it uses a robust experimental design and uses several research instruments to measure the effectiveness of using chatbot technology and artificial intelligence in improving the quality of interpersonal communication in online learning.

Results and Discussion

ChatGPT (Generative Pretrained Transformer) was developed with a technique called Reinforcement Learning from Human Feedback to train language models, allowing them to be highly communicative.(Al-Worafi et al., 2023) Use of chatbot technology and artificial intelligence to improve interpersonal communication in online learning. The results showed that the use of chatbot technology and artificial intelligence can improve the quality of interpersonal communication among students in online learning. This was demonstrated by

significant improvements in interpersonal communication skills in the experimental group after receiving treatment, compared to the control group that did not receive treatment.

In addition, the results also showed that students felt satisfied and more confident in communicating after using chatbot technology and artificial intelligence in online learning. This shows that chatbot technology and artificial intelligence can be effective solutions to improve the quality of online learning in terms of interpersonal communication. However, although the results suggest the use of chatbot technology and artificial intelligence can improve the quality of interpersonal communication in online learning, the study has some limitations. These limitations include that this research was only conducted on one online learning program in the field of business management, so generalization of research results needs to be done carefully. In addition, this study only used research instruments in the form of questionnaires and tests, so the use of other research instruments such as interviews or observations may be able to provide more complete and in-depth data on the effectiveness of using chatbot technology and artificial intelligence in improving interpersonal communication in online learning.

To overcome these limitations, further research can be carried out using a larger and more diverse sample and involving more complete and in-depth research instruments to obtain more valid and reliable results. In addition, further research can also be conducted by considering other factors that can affect the effectiveness of using chatbot technology and artificial intelligence in improving interpersonal communication, such as individual characteristics of students, learning environment, and technological factors. In addition, the results of this research can also be applied in the context of online learning in general, both in the scope of formal and non-formal education. In addition, chatbot technology and artificial intelligence can also be applied in business and organizational contexts to improve interpersonal communication between employees or between employees and customers. Nevertheless, keep in mind that the use of chatbot technology and artificial intelligence is not the only solution to improve the quality of interpersonal communication in online learning. The development of traditional interpersonal communication skills through interpersonal interaction and hands-on practice remains necessary. In this case, the use of chatbot technology and artificial intelligence can be used as a complement and support in online learning, to increase overall learning effectiveness. In conclusion, the results of this study show that the use of chatbot technology and artificial intelligence can improve the quality of interpersonal communication in online learning. However, further research needs to be done to obtain more valid and reliable results and consider other factors that can affect the effectiveness of using the technology.

Conclusion

Based on this research, it can be concluded that the use of chatbot technology and artificial intelligence can improve the quality of interpersonal communication in online learning. In the case study conducted, it was seen that students who used ChatGPT and AI had a higher level of satisfaction in interpersonal interaction in online learning compared to a control group who used a regular online learning platform. The results of this study show the potential use of chatbot technology and artificial intelligence in improving the quality of online learning and student learning experience. However, the study also emphasizes that this

technology is not the only solution to improve the quality of interpersonal communication in online learning, and the development of traditional interpersonal communication skills is still necessary. In this case, the use of chatbot technology and artificial intelligence can be used as a complement and support in online learning, to increase overall learning effectiveness. Future research can consider other factors that can affect the effectiveness of using the technology and produce more valid and reliable results

References

Aczel, B., & Wagenmakers, E. J. (2023). Transparency Guidance for ChatGPT Usage in Scientific Writing. psyarxiv.com. https://psyarxiv.com/b58ex/download?format=pdf

Adesso, G. (2023). Towards The Ultimate Brain: Exploring Scientific Discovery with ChatGPT AI. europepmc.org. https://europepmc.org/article/ppr/ppr619511

Ahshan, R. (2021). A framework for implementing strategies for active student engagement in remote/online teaching and learning during the covid-19 pandemic. Dalam Education Sciences (Vol. 11, Nomor 9). https://doi.org/10.3390/educsci11090483

Aljanabi, M. (2023). ChatGPT: Future Directions and Open Possibilities. Dalam Mesopotamian Journal of CyberSecurity. Mesopotamian.press. https://mesopotamian.press/journals/index.php/CyberSecurity/article/download/33/51

Aljanabi, M., Ghazi, M., Ali, A. H., & Abed, S. A. (2023). ChatGpt: Open Possibilities. Dalam Iraqi Journal For …. journal.esj.edu.iq. https://journal.esj.edu.iq/index.php/IJCM/article/download/539/258

Alkaissi, H., & McFarlane, S. I. (2023). Artificial Hallucinations in ChatGPT: Implications in Scientific Writing. Dalam Cureus. cureus.com. https://www.cureus.com/articles/138667-artificial-hallucinations-in-chatgpt-implications-in-scientific-writing.pdf

Al-Worafi, Y. M., Hermansyah, A., Goh, K. W., & Ming, L. C. (2023). Artificial Intelligence Use in University: Should We Ban ChatGPT? preprints.org. https://www.preprints.org/manuscript/202302.0400

Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the Era of Generative Artificial Intelligence (AI): Understanding the Potential Benefits of ChatGPT in Promoting Teaching and Learning. Available at SSRN 4337484. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4337484

Chen, T. J. (2023). ChatGPT and other artificial intelligence applications speed up scientific writing. Journal of the Chinese Medical Association. https://journals.lww.com/jcma/Citation/9900/ChatGPT_and_other_artificial_intelligence.174.aspx

Conrad, C. (2022). How student perceptions about online learning difficulty influenced their satisfaction during Canada's Covid-19 response. Dalam British Journal of Educational Technology (Vol. 53, Nomor 3, hlm. 534–557). https://doi.org/10.1111/bjet.13206

Cooke, P. C. (2022). Developing a blended learning postgraduate teaching program in anesthesia: Pandemic and beyond. Dalam Postgraduate Medical Journal (Vol. 98, Nomor 1161, hlm. 559–563). https://doi.org/10.1136/postgradmedj-2021-140155

Dinh, L. P. (2020). Pandemic, social distancing, and social work education: Students' satisfaction with online education in Vietnam. Dalam Social Work Education (Vol. 39, Nomor 8, hlm. 1074–1083). https://doi.org/10.1080/02615479.2020.1823365

Enadula, S. M. (2021). Recognition of Student Emotions in an Online Education System. Dalam 2021 4th International Conference on Electrical, Computer and Communication Technologies, ICECCT 2021. https://doi.org/10.1109/ICECCT52121.2021.9616788

Espino, D. P. (2021). Student Emotions in the Shift to Online Learning During the COVID-19 Pandemic. Dalam Communications in Computer and Information Science (Vol. 1312, hlm. 334–347). https://doi.org/10.1007/978-3-030-67788-6_23

Hashlamoun, N. A. (2021). Cultural challenges eLearners from the GCC countries face when enrolled in Western educational institutions: A thematic literature review. Dalam Education and Information Technologies (Vol. 26, Nomor 2, him. 1409–1422). https://doi.org/10.1007/s10639-020-10313-1

Hettiarachchi, S. (2021). Student satisfaction with online learning during the COVID-19 pandemic: A study at state universities in Sri Lanka. Dalam Sustainability (Switzerland) (Vol. 13, Nomor 21). https://doi.org/10.3390/su132111749

Joshi, O. (2022). Benefits and challenges of online instruction in agriculture and natural resource education. Dalam Interactive Learning Environments (Vol. 30, Nomor 8, hlm. 1402–1413). https://doi.org/10.1080/10494820.2020.1725896

Kalmar, E. (2022). The COVID-19 paradox of online collaborative education: When you cannot physically meet, you need more social interactions. Dalam Heliyon (Vol. 8, Nomor 1). https://doi.org/10.1016/j.heliyon.2022.e08823

Mann, D. L. (2023). Artificial Intelligence Discusses the Role of Artificial Intelligence in Translational Medicine: A JACC: Basic to Translational Science Interview With ChatGPT. Dalam Basic to Translational Science. jacc.org. https://doi.org/10.1016/j.jacbts.2023.01.001

Muniasamy, A. (2020). Deep learning: The impact on future eLearning. Dalam International Journal of Emerging Technologies in Learning (Vol. 15, Nomor 1, hlm. 188–199). https://doi.org/10.3991/IJET.V15I01.11435

Rizvi, Y. S. (2021). Transformation of learning from real to virtual: An exploratory-descriptive analysis of issues and challenges. Dalam Journal of Research in Innovative Teaching and Learning (Vol. 14, Nomor 1, hlm. 5–17). https://doi.org/10.1108/JRIT-10-2020-0052

Tick, A. (2021). ICT-supported Learning: Concepts going viral. Dalam SACI 2021—IEEE 15th International Symposium on Applied Computational Intelligence and Informatics, Proceedings (hlm. 45–50). https://doi.org/10.1109/SACI51354.2021.9465605

Vate-U-Lan, P. (2018). Thriving social network for communication on learning: Exploring gender differences in attitudes. Dalam ACM International Conference Proceeding Series. https://doi.org/10.1145/3279996.3280010

Wigfield, A. (2022). Developing a New Conceptual Framework of Meaningful Interaction for Understanding Social Isolation and Loneliness. Dalam Social Policy and Society (Vol. 21, Nomor 2, hlm. 172–193). https://doi.org/10.1017/S147474642000055X

Yang, Q. (2021). The critical factors of student performance in MOOCs for sustainable education: A case of Chinese universities. Dalam Sustainability (Switzerland) (Vol. 13, Nomor 14). https://doi.org/10.3390/su13148089

You, W. (2022). Research on the Relationship between Learning Engagement and Learning Completion of Online Learning Students. Dalam International Journal of Emerging Technologies in Learning (Vol. 17, Nomor 1, hlm. 102–117). https://doi.org/10.3991/ijet.v17i01.28545

Zarcone, D. (2022). Online lessons of human anatomy: Experiences during the COVID-19 pandemic. Dalam Clinical Anatomy (Vol. 35, Nomor 1, him. 121–128). https://doi.org/10.1002/ca.23805