Mitigating heterogeneity in the classroom?
Chatbots as support in nursing training

Katharina Hirt[1], Martin Laun[2], Eva L. Wyss[1], Fabian Wolff[2]

[1]*University of Koblenz, Germany*
[2]*Bielefeld University, Germany*
khirt@uni-koblenz.de

Paper Abstract

Due to the shortage of qualified nursing staff in Germany (https://www.pflegenot-deutschland.de/ (11.0324)), attempts are being made to counteract this shortage by recruiting specialists from abroad (Böhlich et al., 2023). However, migrants already living in Germany also aspire to careers in nursing and therefore undertake nursing training, which leads to very heterogeneous classes in nursing schools. A significant challenge therefore is effectively addressing these students' heterogeneous learning backgrounds with limited resources. Chatbots have emerged as fundamental elements of innovative teaching approaches to address this issue (Kasneci, 2023). The technological advancement of Large Language Models (LLMs) makes interactions with chatbots increasingly indistinguishable from conversing with real people, contributing to their growing popularity. Chatbots could facilitate such interactions, enhance learners' motivation, personalize learning, and improve learning outcomes (Lazarides & Chevalère, 2021; Zhang & Aslan, 2021). "Language plays a special role in nursing training as communication is a nursing intervention." (Daase/Fleiner, 2024) Researchers stress "the necessity of orienting nursing training towards the increasing linguistic heterogeneity in the group of trainees – not only due to migration." (Daase/Fleiner, 2024) In our study, we investigated whether students in nursing training can benefit from working with a chatbot, with a particular focus on students with German as a second language. The study involved 224 students from vocational nursing schools who created and completed medical educational tasks with and without a chatbot's support (ChatGPT, Model GPT-4). In our presentation, we will present the differences between the produced care plans, focusing on linguistic and specialized competence performed by the trainees in both sets of texts (with and without AI). Experts evaluated all two sets of answers. This allowed us to compare the quality of the answers solved by the chatbot to the solutions by the students. The evaluation focused firstly on the professional quality and secondly on the linguistic quality (morphosyntax, use of technical terms, syntax, and textuality). Statistical analyses highlighted that students' quality regarding both fields of interest was significantly higher when using the chatbot. However, they also revealed that students with advanced language skills benefited more compared to those with lower proficiency levels. The results indicate that using ChatGPT in nursing training could enhance the already existing heterogeneity in the classroom rather than mitigate it. We therefore suggest that – in order to make use of the technological advancements provided by chatbots – training in using AI is urgently required for teachers as well as students.

Keywords: chatbots, education, German as a second language, heterogeneity, human computer interaction.

REFERENCES

Böhlich, S., Gade, C. & Reiff, E. (2023). Who cares? Pflegefachkräfte im Ausland gewinnen". In C. Kreuzenbeck, H. Schwendemann & M. Thiede (Eds.), *Die Herausforderungen der Generation Babyboomer für das Gesundheitswesen*. 107–125. Springer.

Daase, A. & Fleiner, M. (2024). Sprachliche Herausforderungen und Bedürfnisse aus Sicht von Lernenden im Kontext der generalistischen Pflegeausbildung – Einblicke in das erste Ausbildungsjahr. *Zeitschrift für interkulturellen Fremdsprachenunterricht (ZIF) 29* (1), 43–64, https://zif.tujournals.ulb.tu-darmstadt.de/article/id/3901/.

Der Pflegenotstand in Echtzeit https://www.pflegenot-deutschland.de/

Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and individual differences*, *103*, 102274.

Lazarides, R., & Chevalère, J. (2021). Artificial intelligence and education: Addressing the variability in learners' emotion and motivation with adaptive teaching assistants. *Bildung und Erziehung*, *74*(3), 264–279.

Zhang, K., & Aslan, A. B. (2021). AI technologies for education: Recent research & future directions. *Computers and Education: Artificial Intelligence*, *2*, 100025.

Acknowledgements/Disclaimers

Our research was funded by Grant 16DHBKI039 from the German Federal Ministry of Education and Research (BMBF).