

18 & 19 JAN 2024

 ADULT  
LEARNING  
XCHANGE

# OUR LEARNING FUTURES

LEARN FAST | LEARN WIDE | LEARN WELL

Organised by

 IAL  
INSTITUTE FOR  
ADULT LEARNING  
SINGAPORE

 AN INSTITUTE OF  
SUSS  
SINGAPORE UNIVERSITY  
OF SOCIAL SCIENCES

Supported by

 SKILLSfuture SG

# Using AI to develop conversational skills

Assoc Prof LEE Chien Ching  
Singapore Institute of Technology

Project Team: A/P Malcolm Low, A/P Benjamin Soon, Asst/P Lu Li Ming, Asst/P Lee Hwee Hoon,  
Asst/ Prof Nadya Patel, Mr Yeo Yue Heng

# Executive Summary

- **Students' learning needs:** Physiotherapy students need repeated practice in history taking independently in a safe learning environment prior to clinical placement
- **Features of the chatbot:**
  - Not an FAQ chatbot
  - Structured conversation offered – critical due to yellow and red flag questions
  - Secure, with single sign on using student ID
- **Roll out:** The chatbot has been rolled out to physiotherapy students: 170 students in Tri 2 (2 Jan – 31 March 2023) and 161 students in Tri 3 2023 (1 May – 28 July 2023).
- **Extended project:** Implementing a chatbot to train ICT students in requirements elicitation (project ended Dec 2023).

# Executive Summary

- **Potential for future development:**
  - Could be scaled up and improved in terms of accuracy and authenticity using multiple scenarios and characters with different personalities
  - Able to pick out potential psychosocial issues that a patient might have besides complaints
  - Coaching special needs students
  - Training for service hotline personnel
  - Training for learners whose first language is not English, to build their confidence in conversing in English



# References

1. Low, M., Yeo, Y. H., Lee, C. C., Lu, L.M., Lee, H.H., Soon, B. & Patel, N. (2023). Implementation of a virtual patient chatbot for physiotherapy student training. *IEEE International Conference on Industrial Engineering and Engineering Management*, Singapore, 18-21 December 2023 (in press).  
<https://doi.org/10.25447/sit.24188160>
2. Lee, C. C., Low, M. Lu, L. M., Lee, H. H. & Soon, B. (2023). User experience on a virtual patient chatbot for physiotherapy student training. *IEEE International Conference on Teaching, Assessment, and Learning for Engineering*, Auckland, New Zealand, 27 Nov – 1 Dec 2023 (in press).  
<https://doi.org/10.25447/sit.23647326>
3. Lee, C. C., & Low, M. (2023). *Honing reasoning skills using a chatbot*.  
<https://elearningindustry.com/honing-reasoning-skills-using-a-chatbot>
4. Lee, C. C., Low, M., Soon, B., Lu L. M., Lee, H. H. & Patel, N. (2022). Development of a chatbot to train physiotherapy students in clinical questioning and reasoning. Proceedings of the *IEEE International Conference on Teaching, Assessment, and Learning for Engineering*, Hung Hom, Hong Kong, December 4-7, 2022, pp. 477-481.  
<https://ieeexplore.ieee.org/document/10148546>

# Acknowledgement

- This work is sponsored by SIT Applied Learning and Innovation Grant.
- The authors would like to acknowledge AWS and Google for their Proof-of-Concept credits.
- We would also like to acknowledge the contributions of the following Research Assistants:
  - Abdul Hady bin Zaydie, Lau Hong Sheng, Aloysius Tay Hui Ming, Lee Hong Sheen, Lim Ke Wei, Sally Chua Yuann Tyng, Darren Soon Jia Jun, and Gan Pei Li