

CHATTING WITH SOCRATES

PROMOTING REFLEXIVE AI LITERACY IN STUDENTS THROUGH SELF-ENGINEERED SOCRATIC CHATBOTS

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INTRODUCTION

With growing awareness of the need to promote Artificial Intelligence (AI) literacy in education, this research is based on an experiential learning activity in an undergraduate Arts subject promoting AI competencies in three core dimensions:

- skills acquisition
- ethical awareness
- pedagogical self-reflection

This poster presents findings from a post-subject survey focusing on learners' perceptions of skill development, engagement, educational utility, and experience of the activity.

BACKGROUND

AI use in education is growing¹ and is being used in a wide range of ways that can either support or hinder learning.²

There is growing recognition that AI literacy must become part of educational curricula as students and educators struggle with AI's implications for teaching and learning.³ Long & Magerko define AI literacy as:

“a set of competencies that enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace.”⁴

Thus, educators and institutions need to help students answer the questions:

- Why should / shouldn't I use AI for learning?
- How should / shouldn't I use AI for learning?

CONTEXT



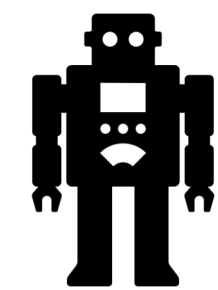
Subject: Islam in the Modern World

Level: Undergraduate, Level 1

Years: 2024 & 2025

Survey respondents: 2024 $n=11$, 2025 $n=9$

Activity: 2024=1 week, 2025=5 weeks

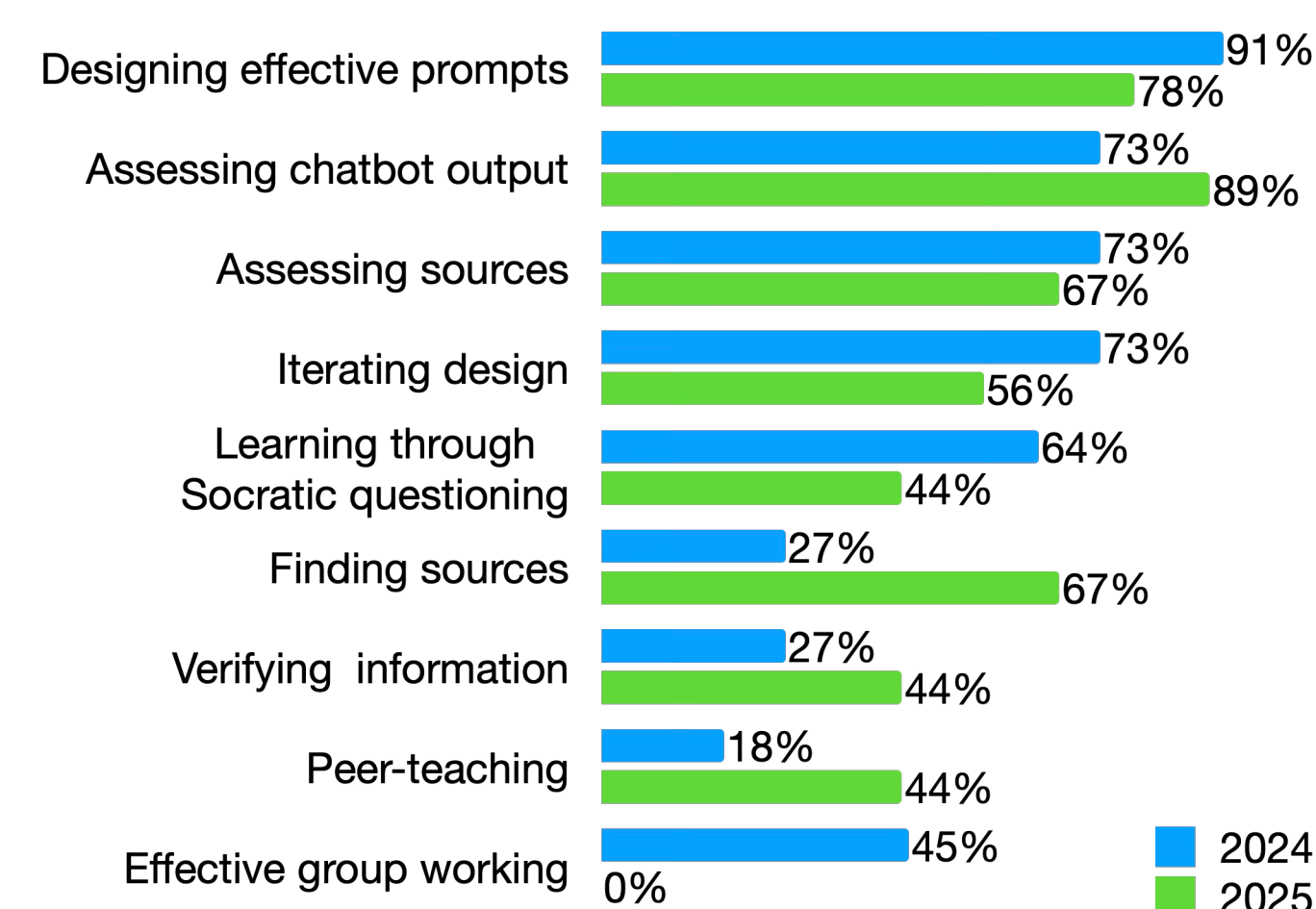


Definition of Socratic Chatbot: A customised chatbot that generates probing questions to encourage learners to articulate their own thought-processes and reasoning, based on the classic Socratic method of learning.⁵

ACTIVITY

- learn about the Socratic method
- learn about problems with bias & hallucinations
- reflect on ethics of AI use
- reflect on the utility of the Socratic chatbot
- design and use the chatbots for learning topics

Which (if any) skills did you learn through the activity?



Please rate the following statements about the Chatbot activity on a scale from 1 to 10, where 1 means 'not at all' and 10 means 'a great deal'.

2024	7.82	7.27	7.00	5.27	8.27
2025	7.56	7.33	6.56	6.67	7.11
	a	b	c	d	e
2024	8.00	7.00	7.00	5.00	9.00
2025	8.00	8.00	6.00	6.00	7.00

Means
Medians

a: I found the activity engaging // b: I feel I understand working with chatbots and AI after the activity // c: The activity helped me learn about Islam in Australia topics (2024) / Islam in the modern world topics (2025) // d: I found the activity challenging // e: The activity taught me about the capabilities and limits of Gen. Artificial Intelligence.

ACKNOWLEDGEMENTS

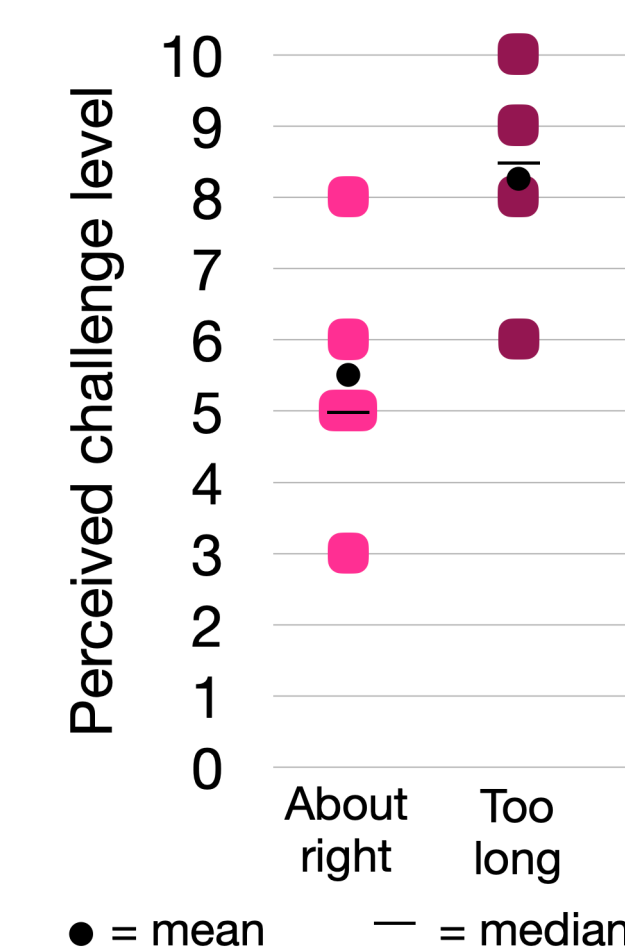
With grateful acknowledgement for the assistance of Dr Christopher Honig, Mr Bronson Hill and Mr Deyan Pejovic who developed the Streamlit/OpenAI template. Also, with thanks to Dr Elena Balcaite and Dr Andrea Dodo-Balu who contributed to data collection and analysis as part of 'Transforming Arts Classrooms and Experiences'.

DESIGN

As well as assigned reading and class discussions on concepts, ethics, and practical implementation, students:

1. engineered their prompts to get the chatbots to act as Socratic tutors
2. curated quality RAG sources on their topics
3. built in a pre-/post-test of learning
4. deployed chatbots to peer-teach topics
5. completed an assessment portfolio of work (literature review, reporting, analysis, & reflection)

Association between perceived challenge & perceived activity length (2025 only)

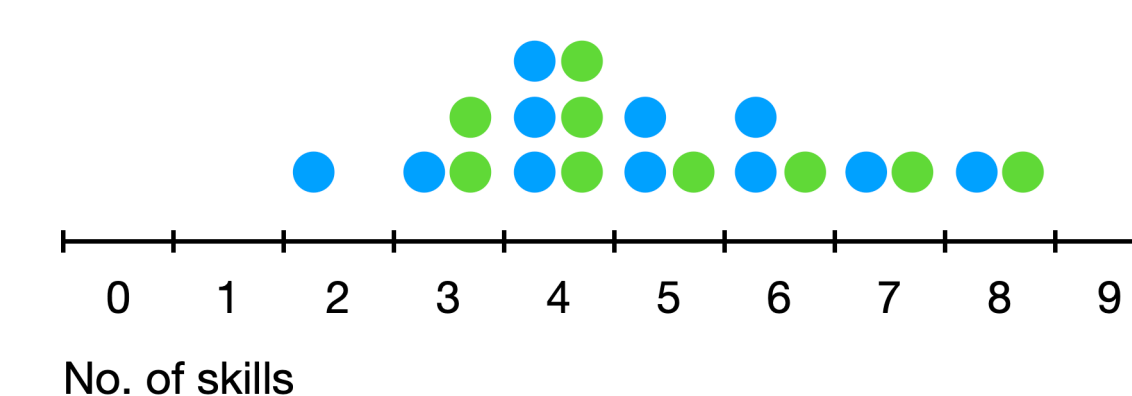


Which aspects of the activity could be improved to enhance engagement?

Element	2024 (%)	2025 (%)
Learning prompt engineering	27%	11%
Learning about other topics through the chatbot	27%	56%
Collecting & assessing source material	55%	11%
Teaching other students through the chatbot	0%	22%
Reflecting on learning with chatbots	N/A	0%
Other: Technical usability	N/A	22%

'Reflecting on learning with chatbots' was not asked in 2024. In 2025, 2 students (22%) chose 'Other' and nominated technical usability of chatbot as an element.

Total skills perceived acquired



SUCSESSES & FAILURES

- Students reported good engagement across both 2024 & 2025 surveys. Mean scores were 7.8 in 2024 and 7.6 in 2025 on a 10-point scale.

"I found teaching other students most engaging as it helped reinforce the knowledge in my mind and by allowing me to articulate the process – I felt more confident/proud of my prompt engineering."

- The 2025 group found the activity more challenging, reflecting the increase in length and complexity.

"Getting the information and picking what to use and then knowing what will be the most useful for the bot was challenging."

- References to issues around trust and bias increased in the 2025 iteration, most likely due to more time in class discussion as part of the activity.

"Learnt a lot about where AI is good and bad, see some severe limitations but also some really good positives that make it a useful tool. You just need to make it work for you."

- The most significant issue concerned technological difficulties.

"The constant lagging made it frustrating to work with at times and also limited amount of sources we could put in."

FUTURE DIRECTION

- Time for group work will be increased to optimise opportunities for peer-teaching and therefore exposure to subject topic diversity for students.
- More guidance on finding appropriate source material for RAG, especially for Level 1 students.
- An expansion of the 'human-in-the-loop' aspect with a fact-checking exercise.
- Streamlit will be replaced with a Python-based interface.

GRANTS

Research supported by The University of Melbourne under Learning and Teaching Initiative 2024 grants 'Transforming Arts Classrooms into Experiences through Rigorous Experiential Learning Design' and 'GenAI+Teaching Agile Development HUB'. Human Research Ethics IDs: 30937 and 33475.

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