ASCILITE 2025

Future-Focused:

Educating in an Era of Continuous Change

Building capacity for AI-powered learning: A collaborative trial of conversational agents in higher education

Antony Tibbs
Edith Cowan University

Generative AI-powered conversational agents represent new opportunities for personalised learning in higher education, but institutional adoption requires careful support and professional development. This paper presents a case study of a collaborative trial involving twenty-six university staff who created and tested learning agents using the Cogniti platform over six months in 2024. Participants developed twenty agents across multiple disciplines, with nine successfully deployed to teaching practice. Survey results showed exceptional satisfaction rates, with all participants rating the platform as easy to use and 95% willing to recommend it to colleagues. Qualitative analysis identified benefits including scalable personalised feedback, enhanced student engagement, and flexible learning scenarios that would otherwise require significant staff time and resources. Participants emphasised that success depends heavily on developing prompting skills and understanding AI limitations. Critical success factors included expert support from learning designers acting as 'critical friends' and opportunities for interdisciplinary learning. Results suggest that well-designed collaborative trials can overcome barriers to AI adoption in higher education by providing necessary training, support, and community while ensuring pedagogically sound implementation that maintains quality learning experiences.

Keywords: conversational agents, artificial intelligence, AI literacy, professional development, learning technology, case study

This paper reports on a collaborative trial of conversational learning agents powered by generative artificial intelligence (AI) at a university in Australia. The findings of this case study indicate that well-supported trials can empower staff to develop effective learning agents, deploy them in their teaching practice and develop their knowledge and skills in generative AI.

Background

Generative AI powered chatbots like ChatGPT have introduced a range of new opportunities and challenges in higher education (Kasneci et al., 2023; Venter et al., 2024). While conversational chatbots in education are not new (Pereira et al., 2023), the power and flexibility of large language models (LLMs) have unlocked a range of new use cases (Bozkurt, 2023; Mollick & Mollick, 2024). Significant challenges include concerns around their use in assessment (Corbin et al., 2025; Lyu et al., 2025) as well as potential negative effects on learning, when commercially available chatbots are used by students without effective pedagogical scaffolding (Bauer et al., 2025; Fan et al., 2025; Tan et al., 2025).

Platforms such as University of Sydney's Cogniti (Cogniti, n.d.) offer educators the capability to provide such scaffolding by creating 'learning agents'. Cogniti, like other similar platforms, allows users to add curated knowledge and additional instructions in plain language (prompts) to the LLM-powered chatbots to guide their behaviour. These affordances can be used to design learning agents for a wide range of pedagogical use cases, from answering basic questions about a unit of study, to detailed role-play simulations for putting theoretical skills into practice (Cogniti, n.d., Mollick & Mollick, 2024). The versatility of these conversational learning agents and emerging evidence of their efficacy can be seen in recent events such as the 2024 Cogniti Mini-Symposium (Cogniti, n.d.) or in articles on the Teaching@Sydney blog (e.g., Gan et al, 2025).

However, an important barrier to the integration of these new tools in higher education is that staff may lack the foundational understanding of generative AI and the prompting skills to design effective agents

and integrate them in their teaching practice. Collaborative trials of learning technologies represent one way to experiment and evaluate the affordances of these new tools while also helping improve understanding and capability in using generative AI. They also provide an opportunity for participating staff to make experience and data driven recommendations to institutions about the potentials and pitfalls of new tools.

This paper provides a case study of one such collaborative trial of Cogniti for the creation of learning agents at a university in Australia. It will briefly outline the design and outcomes of the trial, the data collection and analysis, and discuss findings of the following questions:

1. What are the benefits and risks of learning agents in learning and teaching?
2. What did the participants learn about generative AI from participating in the trial?
3. What supports were most effective for the participants in joining the trial?

About the Cogniti trial

The Cogniti trial took place from July to December 2024, with agents deployed to teaching in semester 2, 2024. Twelve academic and professional staff took part as participants responsible for creating agents for use with their students or staff they support. Academics were recruited from a range of Schools including Education, Performing Arts, Medical and Health Science, Engineering, Business and Law, Arts and Humanities, and the Academic Pathways program. In addition, fourteen support staff took part to offer support and training. The majority were learning designers from the Centre for Learning and Teaching, who participated in the trial as 'critical friends' to provide advice and support to participants in creating pedagogically sound agents.

All participants and support staff were provided with temporary access to the Cogniti platform, training sessions, prompting masterclass, online reference materials, and a Teams site for asynchronous collaboration. In addition, 2-hour face to face 'hackathon' workshops were held to give the opportunity for participants to start prototyping their agent ideas in collaboration with learning designers.

Data collection and analysis

At the end of the trial, participants and support staff were invited to participate in an anonymous Qualtrics survey (Ethics approval 2024-06038-TIBBS). The survey included closed and open-ended questions about usability and features of the platform, the support and training, the benefits and drawback for learning and teaching, and learnings and takeaways about AI.

Usage analytics were downloaded from Cogniti's administrator dashboard. Analytics included the number and names of agents created, the average number of conversations, unique users, and length of conversation. Quantitative data was analysed in Excel and qualitative data was coded deductively in Nvivo by the author against the three research questions.

Results

Platform analytics

Analysis of the Cogniti analytics revealed that participants created 20 agents, with 9 (4 tutors, 3 roleplays and 2 FAQs) deployed to students or staff. The deployed agents had a total of 455 conversations by 129 unique users, with a median average conversation length of 7.8 turns. The three agents with the most engagement were a reflective writing feedback tutor, a clinical patient interview roleplay, and a journalism roleplay featuring a conversation with an editor. Support staff created an additional 30 agents, mostly for exploration and testing purposes, as indicated by having 3 or fewer unique users per agent.

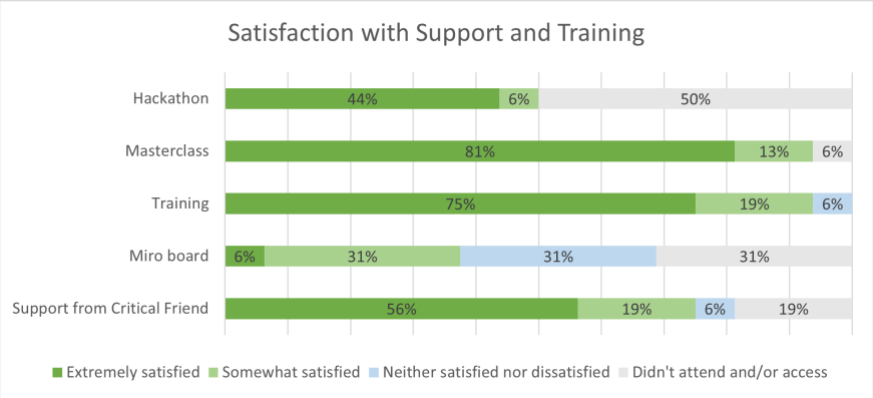
Survey

The participant response rate was 83% (10 responses) and the support staff response rate was 71% (10 responses), indicating that results are highly representative.

The respondents rated Cogniti highly overall. 100% of respondents agreed or strongly agreed that Cogniti was easy to use, and 89% agreed or strongly agreed that its features met their needs. 95% of respondents would be likely or highly likely to recommend it to a colleague. Notably, the remaining responses were neutral, with no negative ratings received.

Participants rated the support and training highly, particularly the training and workshops, as can be seen in Figure 1. Some offerings were not accessed, for example half of respondents did not attend the hackathon workshop. There were no 'dissatisfied' responses for any offering.

Figure 1. Satisfaction with support and training.



Deductive coding of the open-ended answers to the survey revealed several themes related to the research questions.

What are the benefits and risks of learning agents in learning and teaching?
Most responses indicated a wide range of benefits, with only a few drawbacks or risks mentioned. The most frequently mentioned benefits related to feedback, scalability, convenience, engagement and flexibility. For example, 'Cogniti enabled me to answer questions [at any time], give tailored interactive lessons and formative feedback with reduced input from me.' (Participant 9). Several participants articulated multiple interrelated benefits of learning agents in their teaching practice:

'It was an opportunity for students to independently try the agent in class and afterwards, to practice their counselling skills and apply theoretical knowledge gained in class in a simulation environment. The AI gave immediate feedback for each student, which, due to time constraints, I would not have been able to. However, I was able to review the role play 'conversations', then provide additional feedback to guide student learning at a later time.' (Participant 1)

'The word 'scaleable' gets bandied around a lot, but that's really an important takeaway. Activities that would otherwise require more time and resources, and would also have some downtime for students in class, can be run more efficiently, and with personalised feedback for individual students. As a fellow trial-member noted, it's a bit like being able to clone yourself in that respect.' (Participant 10)

In terms of drawbacks, participants most often mentioned the time required to learn and develop the agents, and the extent to which the lecturers had developed the required skills for effective use. For example, 'The system is only limited by the lecturer's understanding of the system and being clear in the educational outcomes they are seeking. So this isn't a Cogniti weakness or shortcoming but a weakness in the possible skills of the lecturer.' (Participant 8).

Support staff also mentioned skills but were also more likely to discuss the potential limitations of the technology itself. For example, '[Agents] may struggle with complex, open-ended, or highly contextual questions requiring expert judgement.' (Support Staff 7). Additionally, some support staff identified the risk of the agents leading to a disconnect between teaching staff and students. For example, 'Students may feel the agent interaction is an inadequate substitute for human/educator contact and feedback.'

(Support Staff 4), or 'Lack of engagement with the students leading to not being aware of the students' needs and not knowing and understanding the learning needs of your students.' (Support Staff 2).

What did participants learn about generative AI from the trial?
Respondents reported a range of learnings about generative AI. The most frequent were prompting skills and an understanding of the capabilities and limitations of LLMs. For example, '[I learnt] How prompts are so crucial to the effectiveness of the agent, and how by slightly changing aspects within the prompts can create a better agent' (Participant 4) and 'It helped refine my skills around prompt design and GenAI use.' (Support Staff 8). For Support Staff 3, the key learnings were 'The limits around fact checking and being a 'source of truth'. A better understanding of how generative AI operates. The various ways it can be useful to enhance creativity and learning.'

What supports were most effective for the participants in joining the trial?
Respondents were overall highly positive about the support, with many emphasising the value of the expert support and advice. For example, 'It was all excellent. Nicely scaffolded workshops, and having the support of learning designers throughout the process meant we had good sounding boards and development support.' (Participant 10). Additionally, participants mentioned the value of the collaborative nature of the trial, and the ability to learn from staff in other disciplines. For example, 'Very much appreciated [the support staff's] expertise and guidance. … It was also so beneficial to work/test with staff from other … Schools - this cross sectional trial was the most beneficial as gave insights to application outside of own silo. More of this should happen at [institution].' (Participant 5)

Discussion

The results of this trial indicate that conversational agents powered by LLMs represent a new and powerful addition to the learning technology ecosystem in higher education (Venter et al., 2024). They can empower educators to scale opportunities for feedback, practice, and engagement for their students, while maintaining control over the behaviours of the agents through prompting and design skills (Mollick & Mollick, 2024). They are also highly flexibly, giving staff the opportunity to apply them to whatever area best suits their needs in teaching and learning, from alleviating workload by providing on-demand answers to common questions, to highly specialised and tailored practice activities (Mollick & Mollick, 2024). Academic can steer and monitor student interactions with AI via these platforms, providing an opportunity to help address issues around impact on learning and academic integrity (Corbin et al., 2024; Lyu et al., 2025). The learning analytics functionality in particular is critical to mitigating the risk of reduced student-staff interaction by providing academics with detailed information about how their students are interacting with their agents that can be used to inform feedback and instruction.

Gaining these advantages are moderated by the time and support required to develop new skills to understand and leverage the new tools, as well as their limitations in terms of accuracy and feedback quality (Bauer et al., 2025; Tan et al., 2025). To address this, institutions can offer well designed and well supported collaborative trials as shown in this case study. Such trials can provide staff with the access, training and support they need to upskill and explore the new technology (Tan et al., 2025). The results highlighted that the involvement of expert support was a critical success factor in the trial. Additionally, the interdisciplinary nature of the trial allows academics to learn from others in different disciplines, and third space practitioners such as learning designers to also develop critical skills in AI and the ability to help scale these practices beyond the trial. As Support Staff 1 said, '[I learned that] I can have a huge impact on helping developing core skills in students', by supporting staff to develop agents.

Conclusion

The results of this trial indicate that providing access to this new category of learning technologies to create LLM-powered conversational agents can empower staff to develop a range of effective learning experiences for students in any discipline. This includes providing better access to information, additional feedback, and highly customised scenarios and roleplays for skills practice. However,

institutional support is essential for overcoming the barriers of time and skill development required to create effective learning agents, which represent a novel capability for all staff at universities.

References

2024 Cogniti Mini-Symposium – Resources. (n.d.). *Cogniti*. Retrieved July 6, 2025, from https://cogniti.ai/2024-cogniti-mini-symposium-resources/

Bauer, E., Greiff, S., Graesser, A. C., Scheiter, K., & Sailer, M. (2025). Looking Beyond the Hype: Understanding the Effects of AI on Learning. *Educational Psychology Review*, *37*(2). https://doi.org/10.1007/s10648-025-10020-8

Bozkurt, A. (2023). Generative artificial intelligence (AI) powered conversational educational agents: The inevitable paradigm shift. *Asian Journal of Distance Education*, *18*(1), Article 1. https://www.asianjde.com/ojs/index.php/AsianJDE/article/view/718

Cogniti – AI agents designed by teachers. (n.d.). *Cogniti*. Retrieved July 6, 2025, from https://cogniti.ai/

Corbin, T., Dawson, P., Nicola-Richmond, K., & Partridge, H. (2025). 'Where's the line? It's an absurd line': towards a framework for acceptable uses of AI in assessment. *Assessment & Evaluation in Higher Education*, *0*(0), 1–13. https://doi.org/10.1080/02602938.2025.2456207

Fan, Y., Tang, L., Le, H., Shen, K., Tan, S., Zhao, Y., Shen, Y., Li, X., & Gašević, D. (2025). Beware of metacognitive laziness: Effects of generative artificial intelligence on learning motivation, processes, and performance. *British Journal of Educational Technology*, *56*(2), 489–530. https://doi.org/10.1111/bjet.13544

Gan, Q., Liu, D., Fan, S., Vallis, C., & Wardak, D. (2025, June 24). From Confused to Confident: How AI Chat Agents Enhanced Finance Learning. *Teaching@Sydney*. https://educational-innovation.sydney.edu.au/teaching@sydney/from-confused-to-confident-how-ai-chat-agents-enhanced-finance-learning/

Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., … Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, *103*, 102274. https://doi.org/10.1016/j.lindif.2023.102274

Lyu, W., Zhang, S., Chuang, T., Sun, Y., & Zhang, Y. (2025). Understanding the Practices, Perceptions, and (Dis)Trust of Generative AI among Instructors: A Mixed-methods Study in the U.S. Higher Education. *Computers and Education: Artificial Intelligence*, 100383. https://doi.org/10.1016/j.caeai.2025.100383

Mollick, E., & Mollick, L. (2024). *Instructors as Innovators: A future-focused approach to new AI learning opportunities, with prompts*. ProQuest Central.

Pereira, D. S. M., Falcão, F., Costa, L., Lunn, B. S., Pêgo, J. M., & Costa, P. (2023). Here's to the future: Conversational agents in higher education- a scoping review. *International Journal of Educational Research*, *122*, 102233. https://doi.org/10.1016/j.ijer.2023.102233

Tan, X., Cheng, G., & Ling, M. H. (2025). Artificial intelligence in teaching and teacher professional development: A systematic review. *Computers and Education: Artificial Intelligence*, *8*, 100355. https://doi.org/10.1016/j.caeai.2024.100355

Venter, I. M., Cranfield, D. J., Blignaut, R. J., Achi, S., & Tick, A. (2024). Conversational AI in Higher Education: Opportunities, Challenges, and Ethical Considerations. *2024 IEEE 28th International Conference on Intelligent Engineering Sys Tems (INES)*, 000195–000202. Crossref. https://doi.org/10.1109/ines63318.2024.10629104

Tibbs, A. (2025). Building Capacity for AI-Powered Learning: A Collaborative Trial of Conversational Agents in Higher Education. In Barker, S., Kelly, S., McInnes, R. & Dinmore, S. (Eds.), *Future Focussed. Educating in an era of continuous change*. Proceedings ASCILITE 2025. Adelaide (pp. 610-614).
https://doi.org/10.65106/apubs.2025.2647