

ASCILITE 2024

Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

More than a repository: Harnessing chatbots to support the identification of research project topics

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The value of a university degree is increasingly under scrutiny, with concerns that technologies such as ChatGPT will diminish the need for distributed scholarly content. The challenges created by technology can also become opportunities, under the right circumstances (Dempere et al., 2023). In this project, we leveraged the emerging Generative Artificial Intelligence (GenAI) to create a chatbot, to enable, rather than diminish, students' learning. Students enrolled in a capstone research unit of Master of Advanced Practice (by coursework) are required to conduct a research project. Common challenges encountered by students include identification of project topic, digital literacy skills, research methodological knowledge, and research writing skills (Ginns et al., 2009; Li et al., 2019; Qasem & Zayid; 2019; Stagg & Kimmins, 2014).

It is imperative to guide students to decide on an area of research that not only matches personal interest but also has clinical relevancy and significance. Delaying the identification of a feasible topic can cause students to experience anxiety and distress related to fear they are unable to complete their project on time (Qasem & Zayid; 2019; Li et al., 2019). This project explored two aims: (1) to harness GenAI (Chatbot) for scalable student learning, and (2) to enrich students' university experiences by providing a scaffolded research-focused learning opportunity.

The project was guided by the active digital learning pedagogy consisting of student-centredness, formative feedback, constructive alignment and flexible infrastructure (Røe et al., 2022). Using a mixed-method approach, the project had four stages. Stage 1 collated and synthesised former students' project topics (Year 2014 to 2023). Stage 2 created, tested, and tuned a GenAI topic-bank/chatbot based on the collated 252 project topics from Stage 1. To achieve this, we collaborated with an AI Experience Strategist to create the project topic-bank/chatbot using Azure open AI (GPT-4 with AI Search) via the reactive Amazon web server Amazon. The chatbot was then tested and tuned to ensure consistency search outcomes. Stage 3 implemented the chatbot on the 1st day of semester by posting the link with user guide as learning resource for students, who enrolled into the capstone research project unit. Stage 4 evaluated the chatbot's usability and effectiveness using a 9-item self-developed survey based on the active digital learning pedagogy (Røe et al., 2022) and a 11-item Bot Usability Scale (BUS) (Borsci et al., 2023). The BUS scale consists of 5 domains focusing on students' perception of accessibility to chatbot functions, quality of chatbot functions, quality of conversation and information provided, privacy and security, and time responses. Two open-ended questions were used to narratively explore students' overall experiences and suggestions to improve the chatbot.

Our findings showcased students' early engagement with the unit by interacting with the project topic-bank/Chatbot. This ameliorated the challenges described above, whereby students practised search skills by entering key concept as "prompts" of their area of interest for the prospective project topic. These prompts included specialty, population and/or main concept/variables. Search results of the chatbot facilitated students in identifying project topic and improved overall unit satisfaction and learning experience.

Keywords: Chatbot; Student research, Generative AI, Higher education

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