

Developing AI Literacy in Higher Education Through Self-Driving Robot Car Experiments

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Abstract

This paper presents the findings of a study conducted in a Year 1 university course that utilises an evolved experiential learning framework. The objective of the study was to develop students' AI knowledge through interactive robotics experiments. This study evolves the traditional experiential approach (Experiencing, Reflecting, Thinking and Acting) by introducing a critical fifth stage, 'Connecting'. This is vital for university-level AI literacy learning, as it bridges hands-on learning from experiments with real world applications. Under this framework, students learned robot operation, model training using real-time data and also observed how models can be optimised through multiple trials. Furthermore, we challenged participants with real world problems to provoke deeper thinking regarding the limitations of AI specifically related to data sufficiency, data privacy and multi-modality integration. 92 participants completed post-workshop questionnaires. The results were compared to those of a control group. The findings indicate that better articulation about AI knowledge and AI limitations among the participants versus the control group. To complement the questionnaire findings, we conducted focus group discussions to gather qualitative feedback on the students' evolving understanding of AI, that would help us refine the experiments. The study was funded by a teaching development grant (2025-2026) from Hong Kong Baptist University.

Keywords: experiential learning; quantitative research; empirical data; real world connection