

Project Summary for IAL Website

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| Project Title: | Microlearning, Gamification and Chatbot for Collaborative and Personalized Adult Learning (MaGiC ² PAL) |
| Project Number: | GA22-03 |
| Year of Approval: | 2023 |
| Funding Source: | WDARF |
| Objectives and intended outcomes of the project: | The objective of the research project (MaGiC ² PAL) is to support practitioners in Temasek Polytechnic (TP) to enhance collaborative and personalised learning for adult learners through empirical studies of three modes of digital learning: Microlearning courses (MLC), Gamification and Chatbot tutoring in TP. |
| Project Team | |
| Principal Investigator: | Miao Huang |
| Summary of Project (up to 300 words) | |
| <p>The MaGiC²PAL Project at Temasek Polytechnic explores how digital learning strategies can enhance collaborative and personalised learning experiences for adult learners in Continuing Education and Training (CET). As adult learners often balance work, family, and study commitments, designing effective online and blended learning (OBL) environments requires educators to deeply understand learners' motivations, constraints, and workplace learning needs. The project recognises adult learners as self-directed and goal-oriented individuals who benefit from flexible, practical, and engaging learning experiences.</p> <p>MaGiC²PAL harnesses three complementary modes of digital learning—Microlearning courses (MLC), Gamification, and Chatbot—to create an integrated and scalable blended learning framework. The project was implemented in three stages: Stage 1 evaluated each digital mode individually; Stage 2 examined combinations of two modes to identify potential synergies; and Stage 3 integrated all three approaches into a holistic learning experience.</p> <p>The study involved over 450 participants across multiple schools, with educators contributing learning resources and implementation insights. Microlearning modules provided concise, on-demand content that improved accessibility and time management for learners. Gamification elements such as progress tracking, challenges and rewards enhanced motivation and learner engagement. In parallel, Chatbot tools, including an in-house developed and customised Chatbot (TPEBot), offered real-time guidance, and personalised support through interactive and gamified features.</p> <p>The project aimed to address three key research questions: the extent to which the MaGiC²PAL approach enhances collaborative and personalised learning; which digital tools work best under different circumstances; and what good practices can be derived for adult education. The research findings indicate improvements in learner engagement, accessibility to support, and learning flexibility. Educators also highlighted the practicality and scalability of the approach. MaGiC²PAL framework and its corresponding educator's guide were derived from this project. Overall, the project provides empirical insights and</p> | |

actionable design guidance for integrating learner-centred, technology-enhanced strategies into CET and future workplace learning environments.