

Project Summary for IAL Website

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Project Title:	Modelling Self-Regulated Online Learning: Video- and Game-Based Learning
Project Number:	GA23-02
Year of Approval:	2024
Funding Source:	WDARF
Objectives and intended outcomes of the project:	<p>Research questions:</p> <ol style="list-style-type: none"> 1. How can learning analytics be used to identify online learners’ SRL subprocesses during video-based learning (VBL) and DGBL? 2. What patterns of SRL subprocesses do online learners undergo during VBL and DGBL? 3. How do the patterns of SRL subprocesses differ between high- and low-performers? <p>Deliverables:</p> <ol style="list-style-type: none"> a. Open-source dataset and machine learning model b. Intervention strategies for low performers
Project Team	
Principal Investigator:	Associate Professor Goh Yang Miang
Summary of Project (up to 300 words)	
<p>Online training is becoming common among adult learners, necessitating self-regulated learning (SRL). This process involves managing learning behaviours and strategies through actions like goal setting and self-evaluation. Monitoring these subprocesses helps assess learners' ability to regulate their learning, enabling timely interventions, particularly for professionals from varied backgrounds with specific needs.</p> <p>Traditional research in SRL often relied on self-reported data from interviews and questionnaires. The proposed study aims to leverage learning analytics to better quantify and understand SRL processes during video-based learning (VBL) and digital game-based learning (DGBL). Previous studies highlighted the benefits of DGBL, especially for more experienced learners, underscoring the need for tailored learning interventions. However, the SRL processes during VBL and DGBL need to be evaluated further. This study seeks to develop machine learning models to map SRL subprocesses using online learning analytics data. The study will explore how these analytics can identify SRL subprocesses, the patterns exhibited during learning, and the differences in SRL between high and low performers.</p> <p>The methodology involves conducting a literature review to select an appropriate SRL framework, recruiting participants to collect diverse data types. Participants will undergo an online course combining video and game elements in a lab setting. Learning actions identified will be coded into SRL subprocesses and analysed to discern patterns across different types of learning content and among varying performer levels. The study plans to compare learning outcomes across game and video content and between different learner groups. This research will employ advanced machine learning techniques to develop a predictive model for SRL subprocesses, aiming to offer actionable insights for personalized learning interventions.</p>	