

Inspiring the Next Generation: Creative and Interactive Micro-Credentials for Green Transition Education

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Abstract:

This study proposes the design of a micro-credential system aimed at helping primary schools track, measure, and improve sustainability practices, ultimately assisting them with their sustainability curriculum. The system employs a data-driven approach that leverages analytics, gamification, and user-friendly technology to engage teachers and facilitate sustainable actions. The key objectives include developing a framework for sustainability milestones, offering insights through data analytics for performance improvement, and fostering engagement via gamified features such as badges and leaderboards. This study employed a mixed-methods approach, combining a survey of 95 primary school teachers—designed via semi-formal interviews and analysed using descriptive statistics and K-Means clustering—with qualitative analysis of eight curated Green School case studies, processed using sentence-level BERTopic modelling for thematic exploration. The study includes the development of a structured micro-credential framework outlining tasks necessary for certification, a progress dashboard with visualisations and personalised feedback to incentivise participation. It focuses on primary schools engaged in the Irish Green Schools Award programme as a test market. The paper presents an analysis of the challenges and opportunities faced by primary schools as they try to incorporate sustainability into their curriculums, and discusses the design of a prototype model showcasing the system's potential to transform sustainability efforts in educational settings. By integrating these components, the micro-credential system aims to make sustainability practices more accessible, measurable, and engaging for primary schools, driving significant improvements in environmental performance and fostering long-term sustainability within educational settings.