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FOSTERING INNOVATION THROUGH DIGITAL COLLABORATION: A DESIGN THINKING APPROACH FOR ACADEMIA AND INDUSTRY

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In the 21st century, modern society faces significant challenges, such as achieving sustainable, inclusive, and fair growth; utilising clean energy; providing quality education; developing infrastructure; taking climate action; conserving biodiversity; managing natural resources responsibly; and addressing waste management. Past efforts to address these challenges have failed, partly due to isolated approaches, a lack of cross-sector collaboration, and a failure to integrate feedback. Addressing sustainability challenges requires out-of-the-box, critical, and innovative thinking. It can benefit from a systems thinking approach and transdisciplinary collaboration among teams that collectively offer the technical, social, and entrepreneurial expertise to introduce human-centred, viable, and long-term sustainable solutions.

This work presents the design, implementation, and evaluation of a digital collaborative environment that fosters team innovation through real-time collaboration, enabling it anywhere and anytime, within the context of design thinking practices that help introduce solutions to complex challenges in entrepreneurship and social entrepreneurship.

The digital platform is designed for innovation-generating contexts in academic environments and industry. In the industry, professional design teams can collaborate in shared workspaces, known as canvases, and utilise scheduling services to monitor progress in project implementation. Users can describe ideas in multiple media formats, build on peers' ideas, organise concepts through colour coding and establishing visual links, and provide constructive feedback. It further supports teamwork planning and monitoring by following agile design paradigms. Scheduling services contribute to the planning, implementation, and monitoring of the planning and implementation process.

In academic contexts, teachers can create a learning pipeline containing activities for use by pupils and students. The activities of the learning pipeline are structured in steps that follow a course structure in an academic semester. Students collaborate in teams to implement the instructions in each step, which are presented in various file formats, including presentations, through a collaborative workspace or canvas, and multiple-choice quizzes to reinforce new knowledge. Instructors can assign learning activities to students by creating a course with a unique identifier which includes teamwork spaces that students can join. Educators can closely monitor participant activity through the course space by reviewing their contributions and analytics.

The digital platform features a repository of public activities designed for all users, including professional designers, teachers, and students. The public repository includes over 100 exercises and 35 complete learning activities. All users can contribute to the repository by publishing high-quality digital content, thereby promoting reuse.

The digital learning platform has been piloted in real-life innovation generation contexts at universities and in industry. Over 450 individuals have used the services to address sustainability goals or, more generally, entrepreneurship challenges. Users reacted very positively, with over 88% responding that the platform supports creativity, idea design, and critical thinking. Furthermore, 85% of users responded that it is user-friendly, and 82% said they would use it again.

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