Empirical Insights Into Remote Work-Integrated Learning:
Bridging Technology and Identity

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ABSTRACT

The aim of this study is to identify and empirically validate the factors that increase students' engagement in remote work-integrated learning (WIL). The technology interactivity model was considered an appropriate theoretical foundation for proposing the conceptual model in this study. Four factors i.e. interactivity, customisation, active control, and synchronicity were derived as key predictors of student's engagement. This was also extended by considering two factors from social identity theory: social identity and personal identity. The necessary data was collected using an online questionnaire with a purposive sample of students at different levels and from different educational backgrounds. Statistical findings largely approved the impact of social identity, interactivity, customisation, and active control on the students' engagement with remote WIL. Results supported the moderating effects of telepresence and social presence on the relationships between the key independent factors: interactivity, customisation, social identity and engagement.

KEYWORDS

Remote Work-Integrated Learning, Technology Interactivity, Social Identity, Telepresence, Social Presence

INTRODUCTION

A paradigm shift has occurred in the dynamic educational environment of the twenty-first century, moving away from traditional classroom-based instruction and placing greater emphasis on experiential learning and problem-solving skills (Andersson et al., 2023; Motta et al., 2023). Specifically, work-integrated learning (WIL) programs have become effective educational models that enable students to gain real-world experience and adapt to remote work contexts (Perkins & Irwin, 2023). Recently, there has been a rise in remote work and an increasing need for students to gain practical experience in digital environments (An et al., 2023; Baichoo et al., 2023; Khorakian et al., 2023; McLennan et al., 2024; Zhao et al., 2023).

When students complete their work remotely, typically from their homes or off-campus locations, this mode of learning is called remote WIL (Kahu et al., 2020). Remote WIL provides hands-on experience and fosters adaptability to telecommuting. Integrating technology into academic curricula enables remote experiences, global collaboration, and diverse learning environments (Hayward et al., 2023). These programs also enhance students' technological proficiency, a highly valued skill in the digital era (Wronka et al., 2023). Moreover, they develop crucial interpersonal abilities, such as communication, teamwork, adaptability, and time management, ensuring that students are well-prepared for virtual work environments (Chakraborty et al., 2025; Jacobs et al., 2023; Singh et al., 2022). Remote WIL initiatives foster an entrepreneurial mindset, provide networking opportunities for future career advancement, and encourage lifelong learning (Apostol et al., 2023), particularly through international projects that enhance cultural awareness and adaptability in multicultural work settings (Billiar et al., 2022; McLennan et al., 2024).

Researchers have consistently demonstrated the positive effects of remote WIL programs on students' academic performance (Alasiri & AlKubaisy, 2022; Bell et al., 2022). Beyond academic growth, these programs foster entrepreneurship, creativity, and innovation among students, enhancing their analytical and problem-solving abilities by engaging them in real-world challenges and utilizing project-based learning methods (Apostol et al., 2023; Duong et al., 2024; Weng et al., 2022). Salm et al. (2023) examined the differences in workplace performance evaluations between remote and in-person cooperative education (co-op) students who completed internships in 2019 (in-person) and 2021 (remote). They found that the most successful co-op students were exceptionally influential and entrepreneurial. Such students' ability to learn new technologies, as well as their independence, have also been commended (Salm et al., 2023).

This type of learning style has been the focus of attention recently as there is an increasing need to equip students with more competencies and practical skills in high demand in light of the digital revolution. In other words, this major shift in the expansion of remote work after the COVID-19 pandemic has changed the shape and nature of traditional workplaces and highlighted the need for a new type of human workforce who are adept at using electronic tools and can achieve virtual cooperation and communication with their peers effectively (Mehla et al., 2021). This, in turn, drew the attention of educational institutions to the need to bridge these knowledge and application gaps by integrating digital simulation, virtual training, and project-based learning within online platforms (Tulaskar & Turunen, 2022). Thus, there has been a need for educational institutions to incorporate remote work into their curricula aimed at providing students with the skills and training needed for the workforce (Moorhouse & Kohnke, 2021; Reid et al., 2023; Simsek Caglar et al., 2024; Xie, 2021). Accordingly, universities in countries such as Australia, Canada, New Zealand, the United Kingdom, and the United States have adopted remote learning opportunities, enabled international partnerships, and created diverse learning environments using improved technology (Kolb & Kolb, 2017).

There is a growing interest in remote WIL programs in Saudi Arabia, underscoring the country's commitment to developing a competitive, knowledge-driven economy (Kassem et al., 2021). In 2016, the government of Saudi Arabia established a transformation unit in response to the country's Vision 2030 initiative. The primary role of this unit was to create coherence among efforts across various sectors, including health, education, tourism, and technology, in alignment with the goals and objectives of Vision 2030 (National Transformation Program, 2016). Therefore, the success of remote WIL courses in Saudi Arabia and the impact of various factors on student engagement and academic achievement must be determined (Aladsani, 2022).

Although remote WIL programs can have a positive impact, their implementation largely depends on students' readiness to actively engage cognitively, emotionally, and behaviorally in the associated learning activities (Kahu et al., 2020). Ensuring student participation in remote WIL can be challenging due to several factors, including technology interactivity (Bell et al., 2022; Yang & Lee, 2017), social presence (Law et al., 2022), telepresence (Islam et al., 2020a; Wei et al., 2023), social identity (Jetten et al., 2017), and communication (Allen & Williams, 2022).

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