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HOW MICRO-CREDENTIALS ENABLE SKILLS RECOGNITION IN EDUCATION AND TRAINING: CHALLENGES AND OPPORTUNITIES FOR INFORMATION SYSTEMS SCHOLARS

TREO Paper

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Abstract

The presence of digital credentials, such as micro-credentials, in education and information systems is increasing. This TREO Forum paper addresses the growing discourse around micro-credentials, highlighting the challenges and opportunities faced by information systems scholars and stakeholders, including employers and learners. We advocate an interdisciplinary approach to tackle challenges and promote transparency, flexibility, and recognition for the successful adoption and management of micro-credential implementation. Moreover, we highlight the importance of context in determining the value of micro-credentials and suggest a forward-looking perspective for their efficacious adoption.

Keywords: Micro-Credentials, Skills, Competences, Lifelong Learning.

1 Extended Abstract

Digital credentials, such as micro-credentials and open badges, have emerged as critical and verifiable components in the realm of educational research (Mhichíl et al., 2023; Pirkkalainen et al., 2022). Diverging from the conventional structure of academic degrees, micro-credentials are multifaceted. They represent succinct, competency-centric certifications that concentrate on precise skillsets or knowledge domains (Ifenthaler, Bellin-Mularski and Mah, 2016). Micro-credentials manifest as modular and adaptable instruments, affording learners opportunities to cultivate targeted proficiencies aligned with their vocational aspirations (Brown et al., 2021).

Within the domain of information systems (IS), the efficacy of credentialing is experiencing a surge of scholarly scrutiny (e.g., Fischer, Oppl and Stabauer, 2022; McGovern and Gogan, 2022). A class of digital credentials, verifiable credentials and their storage in digital wallets have gained widespread attention (Lacity and Carmel, 2022). For example, during the COVID-19 pandemic, many individuals stored vaccination certificates on their mobile devices, which led to privacy and security concerns (Sedlmeir et al., 2021). Recent IS research has explored the adoption, use, and management of micro-credential platforms in education and training (e.g., by leveraging blockchain technology) with consideration for the self-sovereign identity paradigm, which emphasizes the importance of providing control over digital credentials and issuing credentials that are trustworthy (Kiiskilä, Hanafy and Pirkkalainen, 2022; Lacity and Carmel, 2022). Individual institutions can issue digital credentials for various purposes, enabling adaptive and individualized strategies in education and workforce development (Kiiskilä, Hylli and Pirkkalainen, 2023). The exchange of digital credentials between learners and education is an opportunity to bridge skill gaps, adapt to technological changes, and provide

learners with targeted lifelong learning approaches (Cedefop, 2023). However, micro-credentials entail challenges for different stakeholders (Varadarajan, Koh and Daniel, 2023). For example, employers face problems regarding the authenticity of micro-credentials due to the variety of skills needed to ensure that they cannot be forged or manipulated (Pirkkalainen et al., 2022; Varadarajan, Koh and Daniel, 2023). In addition, learners' acquisition of knowledge can be constrained, as some micro-credentials are limited to a specific niche (Varadarajan, Koh and Daniel, 2023). Technical and organizational challenges include the necessity of gaining a comprehensive view of digital credentialing systems, together with their implementation and key aspects (Hickey and Chartrand, 2020). For instance, IS scholars face design challenges related to developing and managing micro-credentials, such as the specification of metadata. The micro-credential development process, while highly complex, could benefit from digital solutions (e.g., digital platforms or blockchain technology) that support the design phase (Fischer, Oppl and Stabauer, 2022). Quality assurance, the integration of digital credentialing systems into educational organizations, and reliable providers of micro-credentials play a decisive role (Fischer, Oppl and Stabauer, 2022; Kiiskilä, Hylli and Pirkkalainen, 2023).

This paper aims to advocate a dialogue regarding opportunities and challenges around micro-credentials, foster interdisciplinary collaborations, and advance methodological innovations to efficiently bridge skill gaps in research on micro-credentials in the IS domain. We argue for an interdisciplinary approach to comprehensively address these challenges and empower a new educational landscape shaped by the imperatives of contemporary learning paradigms.

Digital credentials comprise compelling opportunities for practice and research. We aim to provide a critical lens, emphasizing the appreciation of skills and talents beyond micro-credentialing. In our opinion, the standards and criteria that define success in the micro-credentialing sphere do not necessarily align with a more holistic and less formalized approach to acknowledging skills and learning. Stackable micro-credentials promise to provide a pathway to a certificate or to create larger credentials (OECD, 2023). The notion of stackability presupposes a structured approach to learning that may not be as flexible or inclusive as it appears (Van der Hijden and Martin, 2023). Barrier-free pathways within qualification frameworks are needed for learners, employers, and organizations (Mhichifl et al., 2023, p. 3). Almost any form of credential can be stacked, but the value of stackability for learners needs further investigation (Kiiskilä, Kukkonen and Pirkkalainen, 2023, p. 13). The power to stack credentials generally belongs to the receiving organization (e.g., employers). Transparency, flexibility, and recognition are needed to transform the approach into a motivational addition for learners' benefit (Pirkkalainen et al., 2022). Micro-credentials should not simply be a digital version of a paper certificate, with attention paid solely to verifiability and not usability. Instead, they should be contextualized (e.g., employability, social inclusion, associated qualifications, lifelong learning) within the communities of practice in which they were issued (OECD, 2023). Research is needed on how digital and verifiable credentials differ from other forms of recognition to uncover their value proposition (Kiiskilä, Kukkonen and Pirkkalainen, 2023, p. 13). We suggest a forward-looking perspective, accentuating technological advancements that could enhance micro-credential implementation (e.g., Fischer, Oppl and Stabauer, 2022; Kiiskilä, Hanafy and Pirkkalainen, 2022; Kiiskilä, Hylli and Pirkkalainen, 2023). Thus, the discourse should move beyond the dichotomy of security assessments toward an inclusive understanding of the factors contributing to the efficacious adoption of credentialing platforms. The European approach to modernizing lifelong learning fosters advancement in micro-credential research (European Council, 2022). Technologically mediated strategies should be sought that could not only optimize credentialing platforms' operational proficiency in more ethical, inclusive, and positive ways but also contribute to a better society (Desmarchelier and Cary, 2022; Spiekermann et al., 2022).

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