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TOPIC 15. National and International Projects

Toward equitable digital recognition of competencies: a synthesis of innovative solutions and recommendations for diverse learning pathways

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The transformation of the labour market and the diversification of learning pathways have heightened the importance of the recognition of prior learning and competencies (RPL) as a lever for employability. However, how can competencies acquired outside conventional educational pathways be effectively recognised? In a context where learning trajectories are increasingly diverse, spanning formal education, professional experience, self-directed learning, and community engagement, societies face a strategic challenge: valuing these learning outcomes to enhance workforce adaptability and respond to the evolving needs of the labour market. Yet, competency recognition remains fragmented, uneven, and often lacking transparency. Within the framework of *Project Reconnaissance des compétences et valorisation des parcours d'apprentissage à l'ère du numérique: une revue systématique des solutions innovantes*, funded by the Fonds de recherche du Québec and the Ministère de l'Économie, de l'Innovation et de l'Énergie (MEIE), we examined the most effective practices, tools, and mechanisms for documenting, assessing, and recognising competencies acquired through formal, non-formal, and experiential learning. The study is based on a systematic review of scientific literature published since 2014 in French, English, Spanish, and Portuguese. From an initial pool of over 1,200 references, a final corpus of 171 relevant publications was selected. Data analysis was conducted using specialised tools (Covidence, Elicit) and a structured extraction framework. The study encompasses a range of contexts, including higher education, continuing education, and professional settings, and considers both technological solutions and implementation practices. Digital portfolios, micro-credentials, and skills passports are analysed and classified according to their adaptability across contexts and their capacity to address interoperability, acceptability, and methodological rigour. The findings reveal significant disparities across learning environments and underscore the importance of open standards, portable solutions, and collaborative governance models. The barriers identified: organisational resistance, the lack of shared standards, and technical integration challenges, call for an integrated approach that combines digital tools, personalised support, and cross-sector collaboration. The development of a unified digital space and alignment with a national recognition framework are recommended to enhance comparability, transferability, and equity in competency recognition. To ensure equitable recognition, assessment instruments must be responsive to the diversity of learning pathways. A modular framework aligned with the national qualification framework is proposed to support progressive and transferable recognition of competencies. Self-diagnostic tools and training recommendation systems could further personalise learning pathways based on existing competencies and professional objec-

tives. The recognition of transversal and socio-emotional skills should rely on multimodal assessment approaches, combining self-assessment, observation, and peer evaluation. Several research avenues warrant further exploration to strengthen competency recognition in an evolving digital environment. These include assessing the impact of recognition mechanisms on educational and professional trajectories, particularly their effects on labour market integration, motivation to learn, and the visibility of competencies. The integration of artificial intelligence and blockchain technologies also raises critical issues related to interoperability, security, and social acceptability. Moreover, the complementarity between micro-credentials, digital portfolios, and traditional recognition mechanisms deserves closer examination, as do the conditions required to foster employer and sectoral stakeholder engagement. Finally, identifying effective support measures is essential to ensure equitable participation and to mitigate the risk of digital exclusion.

