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Provocation

Subject to Editor review, Provocations are intended to be short and showcase thought leadership and expert commentary on the future of credentials for work in a disrupted world.

Micro-credentials for recognition of workplace learning

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Introduction

The concept of micro-credentials has emerged in recent years. The definition is not completely set yet, and the implementation is still a work in progress. The national qualifications frameworks in most countries do not include micro-credentials; probably because of this, micro-credentials still take various forms such as units or components of a unit within a qualification, massive open online courses, upskilling training programs, soft-skills assessment, and special purpose certificates. This variability makes recognition and portability of micro-credentials, within and across countries, difficult. In response, initiatives to introduce a level of standardisation are emerging, such as the recent guidance for portability of Australian micro-credentials (Universities Australia, 2021). Overall, micro-credentials are seen as the potential solution to a range of challenges, such as certifying competencies, developing employability, and widening access to higher education. There is an increasing number of publications about design of micro-credentials for advanced standing in higher education (Mischewski, 2017; Selvaratnam & Sankey, 2021; Universities Australia, 2021; Wheelahan & Moodie, 2021), and a few on the use of micro-credentials for competency-based learning (Berry & Cator, 2016; Matters, 2016; Williams, 2019). However, while most of the existing literature presents micro-credentials in the context of the changing world of work and the need for workers to adapt and learn on the job (Kift, 2021; Oliver, 2019), little has been written about micro-credentials for recognition of workplace learning.

In this provocation, we encourage the design of micro-credentials for greater recognition and portability of on-the-job learning, be it for credit into formal qualifications or not. We argue that

designing micro-credentials for alignment with formal qualifications in terms of volume of learning and learning outcomes may leave employers' needs (Beven, 2020) unmet and continue the disconnect between employers' and education providers' perceptions on graduates' work-readiness. We argue also that micro-credentials give an opportunity to better embed workplace informal learning into formal qualifications. This differs and complements calls for standardization of micro-credentials in terms of learning outcomes and duration of learning activities. Micro-credentials could be described in terms of other outcomes related to employability rather than traditional learning outcomes and duration of learning activities. For our purpose, adapted from (Kinash et al., 2016), employability is the set of attributes for a graduate to secure or enhance their work. Industry calls for development of employability before graduation. Higher education providers are moving towards greater integration of professional exposure to prepare students for professional practice, and contemporary workers need to actively keep up their employability and be prepared to adapt quickly. In this context, the line between workers and students blurs, and study and work intersect more closely than ever before. We embrace this new reality acknowledging the whole range of ways to engage with learning through professional experience, such as students enrolled at university while undertaking paid employment, workers who upskill through on-the-job activities, students at university who engage with work integrated learning, or individuals who seek recognition of their workplace learning for credit into formal qualifications. Based on our background, we refer to the engineering discipline as an illustrative example to demonstrate the need that micro-credentials could address.

Background

There is a growing need to rapidly upskill and reskill workers, as jobs become increasingly fluid and ever more complex (Morisson & Pattinson, 2021; Rotatori et al., 2021). Learning and development is of renewed interest to policy makers to enhance employability and organisational competitivity (García-Peñalvo et al., 2014; Morisson & Pattinson, 2021; Skule, 2004), and it has progressively secured a prominent position in organisations, topping corporate agendas (Linkedin Learning, 2021). Current workforces are largely unprepared for the future of work, and new ways to facilitate on-the-job learning are required (Volini et al., 2021). Traditional formal ways of learning are not flexible and targeted enough to respond to this demand. The disconnect between structured learning and learning through work has been documented in previous research (Lizier & Reich, 2020). The findings suggest that for effective on-the-job learning the focus needs to shift away from structure and 'towards the interplay of organisational complexity, fluidity of work, and experiences of learning primarily through work' (Lizier & Reich, 2020). Most of the learning that occurs in the workplace is largely informal and social, responds to new challenges at work and the learning process is continuous, self-regulated, integrated with work, and largely directed and mediated by the individual (Littlejohn & Margaryan, 2014). Informal learning is intentional or deliberate, but it is not institutionalised (ASCED, 2014; UNESCO, 2011). It is typically not structured in terms of objectives, time or learning support, and may occur in the workplace, community, and daily life (ASCED, 2014). It is different from formal education, which is institutionalised and leads to a formal qualification.

Formal qualifications are designed based on learning outcomes and volume of learning. The learning outcomes describe what graduates are expected to know, understand and be able to do as a result of learning. Academic programs are structured in units of study with a range of learning outcomes each, and constructive alignment is often used to ensure that the degree's learning outcomes are mapped in the learning outcomes of the constituent units of study, following progressive scaffolding throughout the duration of the degree program. Qualifications are meant to show employers and others what the holder is capable of and has achieved (Noonan et al., 2019). However, the graduation documentation does not provide enough clarity and transparency (Boud & Jorre de St Jorre, 2021); the award testifies the completion of the formal qualification, the testamur lists the units of study with the overall student's grade for each, often without grading each learning

outcome, and the Australian Higher Education Graduation Statement (AHEGS) describes extracurricular activities. Embedding micro-credentials related to professional practice, before or during the degree program, could improve the development and visibility of students' employability. On the other hand, the volume of learning is the notional duration necessary for a typical student to undertake all learning and assessment activities that are required to achieve the learning outcomes (Australian Qualifications Framework Council, 2014). It is generally expressed in years of study although there have been recommendations to shift to hours for greater flexibility and granularity (Noonan et al., 2019). Although hours of higher education may be meaningful for school leavers, they are not as relevant in postgraduate studies, upskilling and on-the-job learning, including professional development. The volume of learning implies certain assumptions of uniformity in the students' cohort, with an underlying requirement that all students need the same formal learning activities to achieve the expected learning outcomes. With more entry pathways and diversity in student cohorts, the notional duration or 'seat time' is harder to estimate and the concept of 'typical student' loses its meaning. Micro-credentials could provide the mechanism to support students' individualised learning, and to develop and recognise employability without the constraints of specified duration or teaching periods.

Taking engineering in Australia as an example, a recognised gap between the outcomes of formal learning activities and the attributes necessary for practice has been tackled, in most universities, by requiring graduates to complete a period - often 12 weeks - of engineering-related work (Male & King, 2019). The duration of the activity is prescribed. However, the nature of the activity and the learning outcomes are rarely described clearly. Engineering faculties and the peak professional body, Engineers Australia, recognise that a better definition of the purpose and oversight of the opportunity provided to students is required. Various mechanisms have been proposed, such as non-credit bearing hurdles involving a diverse array of industry-engaged activities that must be completed before progressing beyond nominated points in the degree program (Kadi & Lowe, 2018). Lowe et al. (2021) analysed the opportunities for students to develop competencies from various learning activities claimed by students as preparation for professional engineering practice (Lowe et al., 2021). They identified the activities that were least prescriptive about the approach to be taken by students (e.g., employment and industry-based projects) as providing opportunities for students to take responsibility and deal with complexity. However, structures to recognise, support, and report these mechanisms have been unwieldy. Kadi and Lowe reported offering multiple workshops to explain the expectations and processes to students (Kadi & Lowe, 2018). Despite the workshops, they found further need to improve students' understanding of the purpose of the program, and for enhanced instructions to students on claiming and providing evidence of their achievements. A recent study conducted on the development of professional skills within university curricula found a strong perception that professional skills are not successfully developed through the academic program and need to be learnt through workplace practice (Willey et al., 2021). The same challenges are faced internationally in engineering curricula to embed professional practice (Luk & Chan, 2020). And, although the nature of professional competencies and employability are discipline-dependent (Jones, 2009), other disciplines that require compulsory work integrated learning components could benefit from the approach to micro-credentials proposed in this paper as well.

Role of micro-credentials as common language to articulate the achievement of employability

Industry claims that competency and experience are more valuable to the employer than a formal qualification, and 'seat time' is not seen as guarantee to attain competency (Gauthier, 2020; National Skills Commission, 2020). There is a need for competency based, shorter forms of credentials (Williams, 2019) based on individualised demonstration of attainment, in experiential

settings, outside the traditional classroom, and that can provide pathways into or can be intertwined with formal qualifications, in addition to existing on their own right outside formal qualifications.

This paper advocates for micro-credentials to provide development and recognition of employability developed outside the traditional learning system, through a range of activities such as co-curricular experiences and on-the-job learning, that may occur prior, after or during formal qualifications. In a rapidly changing work environment, individuals become life-long learners who need to track their current skills, certify them, assess learning needs for possible career paths, identify skill gaps, and develop and record new competencies. The above is meaningful for the individual but also for organisations. To future proof the workforce, organisations benefit from understanding the available expertise and skills in the current workforce, identifying gaps to pursue opportunities, and conducting targeted recruitment. The ability of organisations to identify skill gaps is of interest also to higher education providers, who can then adapt their programs to better meet industry needs. Micro-credentials have the potential to become a common language for better communication and understanding among stakeholders and to assist learners in creating a career narrative (Berry & Cator, 2016; Healy, 2021). In relation to the connection with higher education, we argue for the use of micro-credentials to better embed workplace learning practices in formal qualifications, not only for credit, but also to enhance work-integrated-learning (WIL) in the curriculum. Recognising professional ways of learning and embedding them in formal qualifications not only broadens the access to higher education but also trains students to become the life-long fast-learners required in today's evolving workplace. Using Kadi & Lowe's engineering example above (Kadi & Lowe, 2018), the complicated structures that are currently necessary to support and recognize individualized student development of employability could be simplified by incorporating the flexibility of micro-credentials in the tertiary education system.

Higher Education Institutions already have credit arrangements for recognition of prior learning (RPL), acknowledging that learning can take place anywhere anytime. Learners gather and submit evidence of their competence for validation (e.g. portfolio, reflection, documentation of their learning by doing), which is assessed against units' learning outcomes. However, current assessment remains often ad-hoc, with a range of different conceptions about RPL (Andersson et al., 2013). For better utilisation of this pathway, a more standardised mechanism for assessment is required and micro-credentials may be instrumental for better integration and co-existence of formal and workplace informal learning. This provocation piece will serve its purpose if it initiates a conversation about the use of micro-credentials in ways that escape the current regulatory constraints that apply to formal qualifications.

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