



The State of Micro-Credentials Implementation and Practice in Australasian Higher Education

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RESEARCH ARTICLE

ABSTRACT

Micro-credentialing is rapidly growing globally as learning that is both life-long and life-wide and this has only accelerated due to COVID-19. To understand what this means for higher education, The Australasian Council on Open, Distance and eLearning has conducted two surveys on the implementation and practice of micro-credentialing in the Australasian sector. With the surveys conducted a year apart, before and after the pandemic, significant changes are noted in the delivery of learning. The results show an increased interest and intention in rolling out micro-credentials, as evidenced, particularly, in work undertaken at the policy level. However, in relation to actual implementation and practice, there is still a lot of work yet to be done. What is evidenced, in the results, is that this form of credentialing will continue to grow rapidly. Higher education institutions are investing in infrastructure and establishing working groups that are placing a governance model for micro-credentials in universities, while ensuring dedicated resourcing is channeled to this endeavour. Moving forward institutions will require significant planning and coordinated delivery at both at the local and global level, if the potential benefits of implementing micro-credentialing, such as portability and stackability over time, are to be realised.

Implications for practice or policy:

- Universities can use this data to plan their implementation of micro-credentials
- Policy makers and regulators can use this information to monitor this field in higher education

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It is useful to first define what is a micro-credential to help frame this paper. Although it may still be a somewhat contested term, the most compelling definition thus far (at least for these authors) is that proposed by Emeritus Professor Beverly Oliver, from Deakin University, who describes it in the following way:

a micro-credential is a certification of assessed learning that is additional, alternate, complementary to or a formal component of a formal qualification (Oliver, 2019b, p. i).

The field of micro-credentials and how these equate to fuller forms of credentialing is still emerging in the Australian higher education sector (Department of Education and Training, 2018). While there is a long history of short courses used for professional development by many professional bodies and more recently the advent of MOOCs, it is seen that the sector is still in the seminal stages of agreeing on a common framework for credit, and that there is much to learn about common good practices (Dyjur & Lindstrom, 2017). The Australian Federal Government is keen to invest in a national platform for micro-credentials to help students identify educational opportunities (Tehan & Cash, 2020) with growing numbers of uptake of short online courses on this national platform (Chanthadavong, 2020). This initiative has the support of Australia's peak university body, Universities Australia, to support providing with qualification and skills for economic recovery (Visontay, 2020), especially in the current COVID-19 impacted economy. Further, to help mitigate some of the effects of unemployment that has resulted from COVID-19, the Australian Federal Government has asked the higher education sector to rapidly develop a suite of short courses (Tehan, 2020) to allow workers the opportunity to reskill quickly, along with a distinct shifting of the focus towards STEM based courses (DESE, 2020). Whether this is actually micro-credentialing though is questionable (Tynan, 2020). In a time where knowledge and skills need to be updated constantly and quickly, a three- or four-year degree may not necessarily suit the currency required for many jobs and among the changing nature of workplaces (The State of Queensland, 2020).

A review of the Australian Qualifications Framework (AQF) (Noonan, 2019) was recently completed. The findings highlight the need for the AQF, and consequently higher education providers, to be more responsive to contemporary needs in the industry. Of particular relevance is the recommendation to broaden the AQF guidelines to encompass a recognition of shorter form credentials, which is defined to include micro-credentials. This will lead towards micro-credentials becoming a formal part of AQF qualifications. The New Zealand Qualifications Framework (NZQF) in 2019 had a similar approach to establishing guidelines for micro-credentials within the NZQF (New Zealand Qualifications Authority, 2019). Work on micro-credentials is also being done on a global scale. One significant example is UNESCO's (2018) report on digital credentialing which proposes a global reference for recognising and negotiating credentials across digital systems. More recently, the European Commission have also released their roadmap towards developing common standards for Micro-credentials (European Commission, 2021). However, for approaches like this to be effective in the Australasian context, contemporary national frameworks, such as proposed in the AQF review and in the NZQF, are important as quality assurance mechanisms for micro-credentials, just as they are for other fuller forms of credentials that are mediated across borders. Other examples in Europe include the Common Micro-credential Framework developed by the European MOOC Consortium (Patterson, 2019) which uses the European Qualifications Framework making credentials portable across member states. Alternative digital credentials will significantly challenge traditional university transcripts (ICDE, 2019). Micro-credentials, usually in a digital format, allows stacking into a potential full or traditional award. This is an opportunity to recruit more non-traditional students (Parks, 2019).

While policy discussions happen at a global and national level, the Australasian Council on Open Distance and eLearning (ACODE), have seen fit to start to partly fill in the gap, by first taking stock of what the current micro-credential practice is at a national and regional level. This was primarily done to inform member institutions, but also as a service to the broader university community and others involved in higher education. At the time of writing, there had been no comprehensive benchmarking of micro-credentialing activity in Australasian higher education. While there has been some research in other countries and globally (Beirne et al., 2020; Pearson,

2019), this has not been the case in Australasia. The findings of this study are important to guide the thinking of universities as they start to plan their offering of micro-credentials in a national context. This study aims to inform and benchmark universities in Australia, New Zealand and Fiji on current practices in the area of micro-credentialing, and to allow these institutions to use this data to help them design, implement or seek a community of practice in the new area of micro-credentialing. The data was collected in two surveys in mid 2019 and mid 2020. The reason the second survey was conducted so soon after the first one was due to the fact that it was anticipated that the COVID-19 pandemic had accelerated efforts in this area (Sankey, 2020), which has since been supported by in the data in 2020 survey.

LITERATURE REVIEW

The Literature reviewed in the field of micro-credentialing is somewhat nascent, thus far there is limited scholarly peer-reviewed academic research available (Selvaratnam & Sankey, 2021) with key researchers suggesting even areas such as digital badging may be too young for a comprehensive literature review (Gibson et al., 2015). However, it is the intent of this paper to help draw what is available together to help form an emerging picture of this dynamic space. In Europe, the research by MicroHE (2019) seeks to provide a comprehensive analysis of impact in European higher education. With limited research available, thought leadership in the field (Lewin, 2008) has been included in the review where it can provide further insights.

An early seminal paper in the field is by Beverly Oliver (2016) and more recently (Oliver, 2019a), that lay out some of the concept, disruption and future of micro-credentials linked to 21st Century skills for employability in Australia. A rapidly evolving higher education landscape is an opportunity for Australian universities to reconsider how they offer education (Fawsett, 2018) coupled with the Commonwealth's efforts to reskill the population in the COVID-19 pandemic employment fallout (Duffy, 2020; Australian Bureau of Statistics, 2020). Employability (or at least growth in this area) has already been identified as a fragile trend, especially around longer-term work (Foundation for Young Australians, 2018) but also, in some instances, short-term (GOS, 2019). To help provide some form of stimulus, appropriate credentialing has been seen as a possible way to help address some skills shortages (Calonge et al., 2019). In line with this, universities have begun to consider how they will cope with artificial intelligence accelerating automation in the future of work (World Economic Forum, 2018). As such, one enabler for this would be micro-credentialing, the importance of which is growing significantly in Australian higher education institutions (Selvaratnam & Sankey, 2019). Together with the outcomes of the AQF review, that recommended the recognition of micro-credentials (Campus Morning Mail, 2019), there is a clear impetus for institutions to further progress their micro-credentialing frameworks.

If such a Framework can be agreed upon, this will have an impact on the region with regards to portability and wider scope of linkages to employment. Countries such as New Zealand already recognise micro-credentials (Education New Zealand, 2018) and alignment between the NZQF and the AQF is already being considered (TEQSA, 2019). Convergence of emerging markets for micro-credentials and short courses (Gallagher, 2016), that make it easier to unbundle traditional awards (Selvaratnam & Sankey, 2019), affords universities the potential to create partnerships linked to employment opportunities for graduates. Countries such as Australia have government funding tied to employability outcomes (Department of Education, 2019). Governments have also made the assumption that micro-credentials would afford adult learners opportunities to stay relevant through upskilling and reskilling for the workforce (Tehan, 2019; OECD, 2019; Pichette et al., 2021) and provide clearer alignment between learning and occupational outcomes (Saray & Ponte, 2019). There are already good examples of national systems to support portability and validation of credentials (SkillsFuture, 2019; Valideringsdelegationen, 2019) and between countries regionally (CEDEFOP, 2019).

The right technical (an agreed framework) approach is important to provide ease of portability of credentials (Czerniewicz, 2019) and a meaningful way to understand what these credentials mean for stakeholders, such as employers (EDUCAUSE, 2018), namely through appropriate verification (McArthur, 2018) whether blockchain technology (Jirgensons & Kapenieks, 2018), or regional central repositories (eQuals, 2019). Work here is very much within the digital space

(Roosevelt Institute, 2016) including digital badging (Ifenthaler et al., 2016) and closely linked forms of open badging (Liyaganawardena et al., 2017; IMS Global Consortium, 2019). Somewhat aligned to this is how MOOCs operate in this space, which is historically better documented (EdSurge, 2018) due to the prevalence of these courses over the last ten years or more. Technically accurate searchability of credentials is another area being developed and to help facilitate this, technology ecosystems need adequate investment (West and Lockley, 2016) to include developing a level of automation for both issuers and learners (Markowitz, 2018) to allow for a widespread uptake. In turn, employers consuming these credentials (Callaghan, 2019) need to be assured of quality (Krupnick, 2019; Jagger, 2019; Leaser & Gallagher, 2017). Basically, universities need a robust ecosystem of policy, infrastructure and a skill-base to ensure success in offering micro-credentials (Ghasia et al., 2019).

Module design informed from the world of work (Rossiter & Tynan, 2019) and represented in recognisable artefacts, such as digital badges, is a way for employers to buy into micro-credentialing, even co-creating or offering them in-house (Oliver, 2019a). It is worth considering the research on digital badges as they are oftentimes the artefact representing micro-credential attainment. More work has been done in this space (Ifenthaler et al., 2016; Mah, 2016; Liyanaganawardena et al., 2017) than micro-credentialing per se from the evaluation of badging platforms (Hamson-Utley & Heyman, 2016; Dimitrijevic et al., 2016) to directly linking employment goals to badging for youth (Spaulding & Johnson, 2016) to learning engagement (Hickey & Chartrand, 2019; Coleman, 2018) and assessment performance (Newby & Cheng, 2019; Abramovich, 2016). Despite this, digital badging is still a field that requires more research (Roy & Clark, 2019).

METHODOLOGY

The authors chose to employ a survey methodology that contained a combination of closed and open-ended questions. This was to allow for a quantification of practice, plus an elucidation of that practice. As the practice of formal micro-credentialing is a reasonably new field of research there was also an element of the socio-political context that needed to be investigated (Joye et al., 2016). This was particularly the case due to the major upheaval caused by the COVID-19 pandemic and resultant acceleration of changing employment trends. Due to the field's significance, the authors take Punch's (2003) emphasis not to consider surveying as small scale in projects such as this, inadvertently diminishing the value of the data.

The data collection method employed for this survey was to approach Pro Vice-Chancellors (PVC) Education or equivalent in ACODE member universities, via email. The invitation requested that the most appropriate person within that institution should be asked to complete the survey. The survey was hosted on Qualtrics. With participants' permission, the responses are collated and shared with ACODE members as per usual practice of knowledge sharing and wider dissemination via presentations and publications. Members who prefer to keep their responses confidential had the option to be de-identified. Australian, New Zealand and Fijian universities and some other higher education providers are well-represented in ACODE with relevant staff who can direct the survey to PVCs on micro-credentialing. 47 member institutions were sent the survey with 34 institutions responding (72%). Participants were asked a series of 17 questions to achieve the aim of the research to survey how Australasian universities approach micro-credentialing to maintain the currency of its offerings and how the sector's higher education landscape is evolving to meet this need.

Where relevant, these results are compared with findings of a similar survey conducted the previous year by Selvaratnam and Sankey (2019) on behalf of ACODE and published in a whitepaper. This comparison provides the longitudinal context showing where significant changes have occurred in the field. There were 37 institutions represented in the results. The breakdown by country and provider is as follows: 27 Australian universities, 7 New Zealand Universities, 1 Fiji university and 2 private providers from Australia. In this Whitepaper, the results of a survey consisting of seven questions ascertaining the level of micro-credentialing work at the respondents' institutions of higher learning are discussed.

This research project received the approval of Edith Cowan University's Human Research Ethics Committee, in accordance with the National Health and Medical Research Council's *National Statement on Ethical Conduct in Human Research* (2007).

FINDINGS

The initial question for the participants was whether their institution has a micro-credentialing policy in place. **Figure 1** illustrates half (17) the institution indicated that they did. Nine institutions provide a link to their policies hosted on a public-facing webpage while seven responded that their policies are either unavailable or still in development. This is compared to 68% of respondents answered 'no' in 2019.

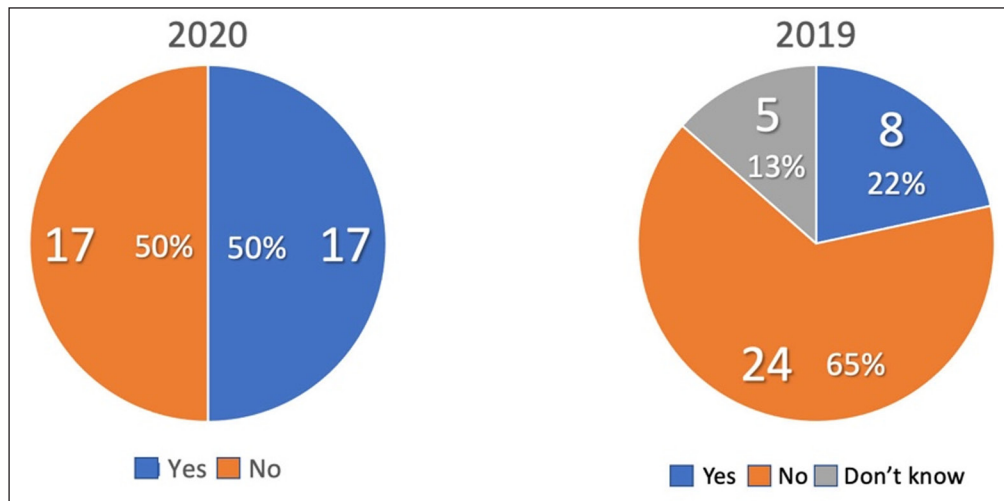


Figure 1 Institutions with a micro-credentialing policy 2020 and 2019.

Figure 2 demonstrates that only 32% of respondents (11) have an approved matrix to determine the level of a credential or badge linked to the levels of learning associated with the Australian Qualifications Framework (AQF), New Zealand Qualifications Framework (NZQF) or similar. 7 respondents explain that they do have an existing approach which includes a recognition of prior learning (RPL) policy. 10 respondents explain that their approach is under development. In the 2019 survey just 13% of respondents said yes to this question.

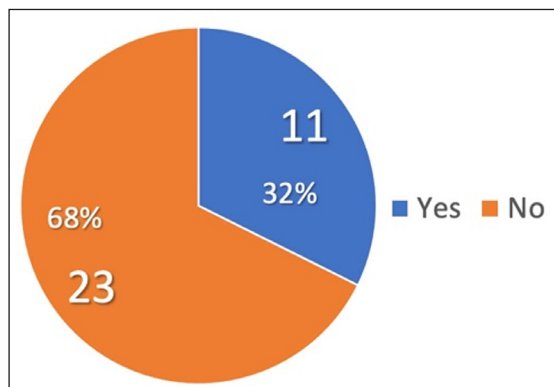


Figure 2 Institutions with an approved matrix linking credentialing and qualifications frameworks.

Respondents were asked if their institution used a credentialing engine, see **Figure 3**. Eleven (11) respondents said yes. Most used the Credly's Acclaim engine, followed by Accredible and finally Badgr. Another 7 respondents say that they will, or probably will, procure a credentialing engine in the next 12 months. This represents a rise from 19% of respondents had a credentialing engine in 2019.

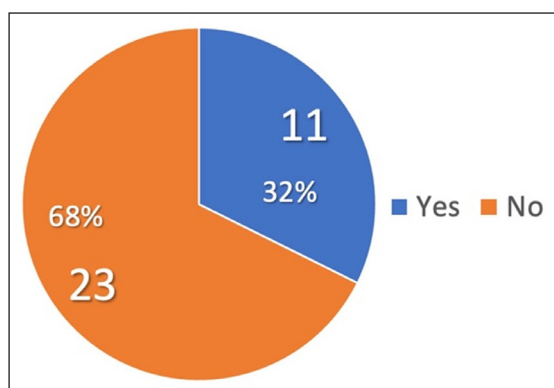


Figure 3 Universities using a credentialing engine.

Respondents were then asked to comment on the state of adoption of micro-credentialing at their institutions, represented in **Figure 4**. Eighty-eight (88%) are in various states of adoption and 3 universities had well-established (Mature) adoption policies. Interestingly, in 2019 27% of institutions classified their adoption as “non-existent” in 2019, where in 2020 this was just 12 %, so there is a definite uptake over the last 12 months.

Figure 4 Status of adoption of micro-credentialing at institutions.

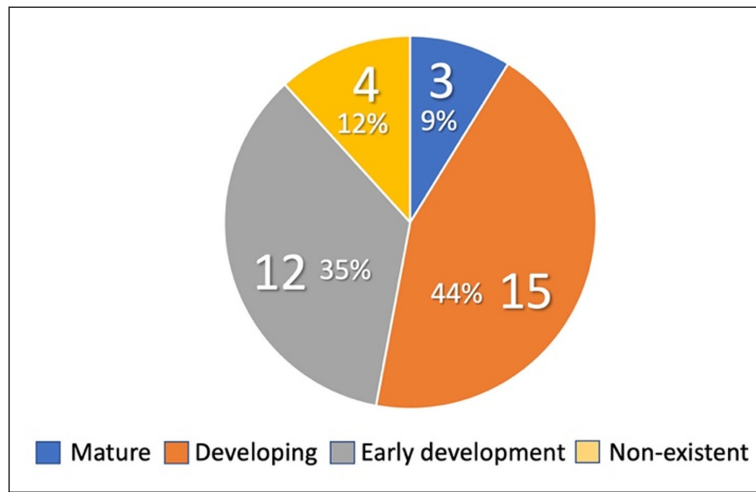
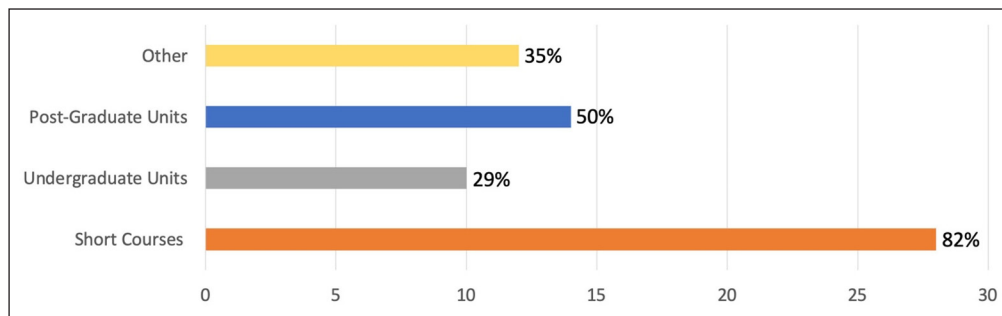


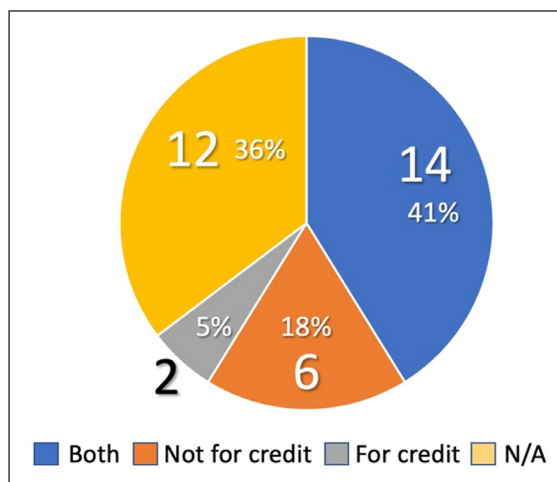
Figure 5 demonstrates that most respondents indicate postgraduate units and short courses were the readiest to be micro-credentialed in their institutions. Respondents could choose more than one option. This is a similar distribution to the 2019 figures. However, undergraduate units were slightly lower at 24% and “other” were 30%.

Figure 5 What institutions currently micro-credential or plan to in the future.



Whether institutions currently micro-credential for credit or not, or both, is reflected in **Figure 6**. While generally micro-credentialing is considered for credit there are institutions which are still developing their path to credentialing. This question was not asked in 2019.

Figure 6 Whether institutions offer micro-credentials for credit or otherwise.



The survey also sought to find out how much of staff professional development is micro-credentialed. **Figure 7** shows only 26% of institutions do so. 68% of respondents suggested their existing professional development courses could be micro-credentialled. This is compared to the 2019 results where 60% of respondents indicated there was no action or consideration to micro-credential professional development.

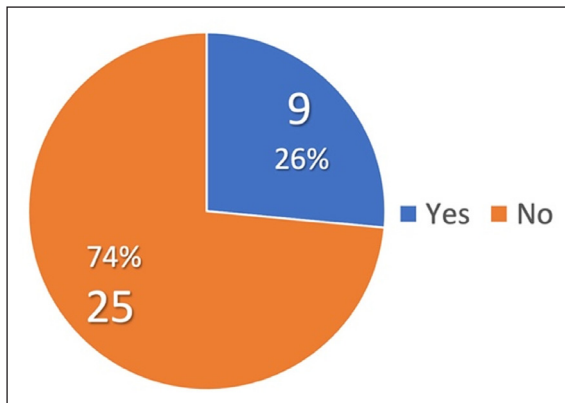


Figure 7 Percentage of institutions that credential professional development.

DISCUSSION

The data from the survey largely shows an increase in the awareness and uptake of micro-credentialing efforts within higher education institutions in Australasia over the 12-month period. There was a 20% increase in institutions responding that they had a micro-credentialing policy in place compared to the survey results in 2019. This is not surprising given the increased attention being paid to the adoption of micro-credentialing over the last 12 months by both governments and providers. This is certainly born-out in the responses that were received. Importantly, for those not quite there yet many are considering the adoption of a policy or were at least able to articulate work being done to progress their efforts towards this. Establishing a policy is usually the first step towards formally offering a micro-credential at the institutional level. Of interest, of the respondents who said they do not have a policy, 9 institutions are quite likely to have one within the next 12 months. This will likely result in 75% of institutions that may well have a micro-credentialing policy in the next 12 months. This is a strong indicator of the intention of pursuing micro-credentialing in these institutions.

With the AQF and NZQF reviews, the question on mapping qualifications to frameworks is pertinent as it indicates the intentions and work for the offerings to now move to a formal credential. The data shows a significant 19% increase from the 2019 survey. This is likely to indicate the complexity of the work that needs to happen around such matrices to determine the level of a credential or badge linked to the levels of learning associated with the relevant national frameworks which then make them a course which can lead to a traditional award. As a result, 30% explain that their approach is under development which is a very encouraging outcome. They are likely incentivised by the momentum in the sector of other institutions moving in the same direction and getting a share of the pie.

In terms of technical infrastructure, the use of a credentialing engine still seems to be immature. While only a third of institutions indicate they use one, this is still a 13% increase from 2019. So, it is likely within the next 12 months just over 17 institutions at least will have a credentialing engine in place. The choice of engine and how prevalent they are in the Australasian market will be interesting to watch as until now they have been more U.S. centric. The utility of a credentialing engine is still not clear. Still relating to technical infrastructure, several universities are working on ways to integrate existing short course systems with participants into award course systems which consist of students. Other notable comments from respondents include planning to offer micro-credentials to businesses and government in a commercial capacity with supporting platforms. Professional practice degrees are a new space being explored to tap into industry partnerships. There is also consideration of co-delivery with providers in Vocational Education and Training (VET) either leveraging on existing systems or new ones. To cope with the rapid move to micro-credentialing, one of the respondents is investigating the creation of a new non-degree teaching entity that will manage the design and delivery of offerings not linked to traditional degree pathways. This can circumvent cumbersome existing platforms by adopting new systems independent of traditional award infrastructures.

What is clearer though, is what institutions may want to credential. In the 2019 survey, most respondents indicated postgraduate units and short courses would be at the forefront for micro-credentialing. It is still the case in the current survey findings. However, of note is the increase in the number of respondents who are already, or plan to, micro-credential undergraduate units.

This is likely due to the undergraduate certificates and short courses the government has asked universities to offer to mitigate unemployment due to COVID-19 induced job losses. Another reason could be the general increase in effort to introduce micro-credentialing as evidenced in the data when respondents indicated the state of adoption of micro-credentialing in their institutions. Another area that lends itself for micro-credentials would be the non-award courses such as recognition for volunteer work, academic skills and integrity, staff training, technology competency and recognising competency and completion of external participants. This would be for both students and staff. Specifically, for staff development, professional courses which could be micro-credentialed include learning and teaching related training, technology, business, compliance and professional skills. In the future, these would include potential teaching and professional skills courses.

CONCLUSION


This paper has focused on micro-credentialing mainly within an Australasian context. Generally, the effort towards micro-credentialing has increased in the region, as evident in the survey responses in 2020 compared to that of 2019 (Selvaratnam & Sankey, 2020). There are several institutions leading the way with a relatively mature adoption of micro-credentialing. Complementing these are institutions which are developing or seriously considering micro-credentialing strategies. Short courses and postgraduate programs are able to be offered comparatively quickly as micro-credentials. Based on similarities in approach that many institutions have adopted, it is clear that higher education institutions have first establish policies to govern this work in their institutions and begun to establish taxonomies to formalise how micro-credentialing might articulate to their context. It is an emerging trend found in the data that indicates that higher education institutions also need to rethink their operating structures to best service the offering of micro-credentials in their various permutations. These are all possibilities in the brave new world of higher education credentials that have been identified in the literature, that some institutions are only now starting to explore. These revolve around the various forms of micro-credentials that an institution might employ to meet a range of business and operational needs. ACOE will continue to monitor this important space over the next few years, or at least until this initiative starts to reach a level of maturity across the sector that we expect to be realised. For the meantime however, it remains an important area that requires research, planning and delivery, that is coordinated both at the local and global level to reap the benefits of the intention, or aspirations of micro-credentialing, which is to be portable and stackable over time and geographic location.

COMPETING INTERESTS

The authors have no competing interests to declare.

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