scope
Contemporary Research Topics

work-based learning 5:

November 2023

Article

https://doi.org/10.34074/scop.6005004

LEVERAGING, AND NOT LEVERAGING, MICRO-CREDENTIALS – AND A GLOBAL PANDEMIC

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Published by Otago Polytechnic Press. Otago Polytechnic Ltd is a subsidiary of Te Pūkenga – New Zealand Institute of Skills and Technology.

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INTRODUCTION

In this article I uncover the voices of practitioners and stakeholders in the micro-credentials space of Ōtepoti in Otago, Aotearoa New Zealand. The research period spans the time before and during the recent COVID-19 pandemic, when Otago Polytechnic, Aotearoa New Zealand, took an innovative approach to learning and assessment, developing micro-credentialing, with mixed success.

This research, which was approved by the Otago Polytechnic Research Ethics Committee in 2021, is presented through the lenses of kaiako, the educator, and is intended to provide consideration of the needs of ākonga, the learner. The voices in a narrative can wake us up to new possibilities (Connelly & Clandinin, 1994), and it is hoped that ākonga and kaiako can benefit from the voices in this narrative.

RATIONALE

When I first encountered micro-credentials (MCs) at Otago Polytechnic (OP) in 2018, there was much excitement at their potential. I heard from various colleagues and stakeholders that they were the next big thing in education, the new learning design model for traditional qualifications, ahead of their time, and a disruptor to the status quo. However, two years later, as the world was entering a global pandemic, the narrative in 2020 had changed: MCs were now the biggest innovation in education that never was, they had failed to gain traction, learners or employers were not yet convinced, we had not figured out how to use them, and we needed to work out how to give them traction. The two years that passed between those statements of optimism and resignation had seen *EduBits*, which was the Otago Polytechnic branding for micro-credentials, fail to become the success that was hoped of them. I was tasked with researching *why* MCs had not gained the traction we had hoped for at OP, and *what* was needed to give them that much needed traction.

When I started this project there were many concepts we were unclear on: we did not know how to use micro-credentials, we did not agree on whether they were stackable as larger units of study/achievement, we did not even know what they were: we disagreed on definitions of MCs. I recall we even lacked terms to describe these 'things' and those other 'bits and pieces' that 'make them up' and 'quality assure' 'them.' UNESCO cited this frustration in its micro-credentials definition launch, commenting that we are "bound by our own language" (Oliver & UNESCO, 2022); and bound we were.

Let us start by dealing with the most rudimentary of these issues: what are micro-credentials?

DEFINITIONS

The New Zealand Qualifications Authority (NZQA) defines micro-credentials as "a sub-set of training schemes that certify achievement of a coherent set of skills and knowledge and that have evidence of need by industry, employers, iwi and/or the community" (NZQA, 2020). The key words here, for me, are *sub-set, certify achievement, coherent skills and knowledge,* and *evidence of need.* A *training scheme* is the learning that goes into achieving a micro-credential in Aotearoa New Zealand. The European Commission has quite an extensive definition of micro-credentials:

> A micro-credential is a documented statement awarded by a trusted body to signify that a learner upon assessment has achieved learning outcomes of a small volume of learning against given standards and in compliance with agreed quality assurance principles. Micro-credentials express credit volume and they are referenced to the national qualification framework and the EQF [European Qualification Framework]. A micro-credential may be offered independent of the method of provision (face-to-face, online or blended learning) or the nature of learning (formal, non-formal, informal). Micro-credentials are owned by the learner and are sharable and portable in the format of a stand-alone certificate, a digital badge, or as part of a portfolio. (European Commission, 2020, cited in Beirne et al., 2020, p. 7)

This inclusive definition does not contradict the NZQA's words, indeed it adds to them with useful characteristics, such as trust, quality assurance, credit volume, national frameworks, multiple delivery options, agency and learner ownership.

At first there was confusion over what differentiated a micro-credential from a digital badge. Much of the literature refers to digital badges, badging, and micro-credentialing interchangeably (Mah et al., 2016), or in lieu of MCs altogether (Ellis et al., 2016; Willis et al., 2016; Lockley et al., 2016). One can attempt to distinguish between MCs and badges through the lens of assessment. It is common for writers to refer to badges when that is exactly what they are: something to display to others, where no assessment takes place, for example Grant (2016). It is common that these badges recognise participation in an event or activity (Glover, 2016), or develop trust networks (Everhart et al., 2016). Where the credentials are awarded as the result of the recognition of an assessed skill or ability, the term MC is invariably used. Examples of this are particularly common in the teacher-education space, where MCs are employed in the professional development arena (Berry et al., 2016).

Beirne et al. (2020), in a commissioned report, posit that there exists "The Credential Ecology," which is MCs of the following nature:

- bundled (they can be stacked together),
- unbundled (standalone),
- credit-bearing (credits are awarded that can be used towards a larger qualification, when bundled/stacked),
- non-credit-bearing (or not)

and any combination thereof. They can also contribute to making education more holistic to learners (Elliott et al., 2014).

The term "bundled" can also be replaced with the term "stacked" or "stackable." Other authors refer to the ability or the need to stack credentials; for example, Lockley et al. (2016); Gibson et al. (2016); Diamond and Gonzalez (2016), who term this "sequence progression" (p. 408); the European Commission (2020); MicroBOL (2020); Gallagher and Maxwell (2019) and Lewis and Lodge (2016). The NZQA later announced that MCs can be stacked in the NZ framework (NZQA, 2021). UNESCO (Oliver & UNESCO, 2022) in its definition launch has defined MCs as needing to:

- be human-centric
- promote equity (United National Sustainable Development Goal Four)
- promote digital transformation and bridge the digital divide (highlighting that reportedly 50 per cent of the world population has no access to the internet and 100 million people lack digital skills)
- have diversity in stakeholders
- form agreement on the scope and definition of MCs
- agree on how to quality assure them, recognise, regulate, and incentivise
- have the affordances of flexibility, portability, transferability and transparency with agreed learning outcomes/ achieved competencies; and, what will prove most prescient,
- "not limit it through over-regulation" in a "varied and challenging landscape."

RESEARCH METHODOLOGY AND METHODS

My overarching methodology in this inquiry is case study, and the method of data collection, data analyses, and data presentation is narrative inquiry. This is therefore a hybrid study, in which I uncover a case and attempt to uncover both good news and bad news stories about micro-credentials and their success or failure as educational and training vehicles in Aotearoa New Zealand. From these stories, I attempt to provide "narrative meaning" (Polkinghorne, 1988) to answer, if only in part, my initial research question, which is: what is needed to give micro-credentials the traction that was hoped of them?

I conducted semi-structured interviews with key stakeholders in an attempt to "mediate stories" (Kim, 2016, p. 151) into being. The participants, numbering seven, are (or were at the time) leaders, academics, and professionals at Otago Polytechnic who were at the heart of the MCs journey, selected for their expertise in MCs, higher and vocational education and training.

For data analyses, I used reflexive thematic analyses as a tool to code and theme my data set (University of Auckland, n.d.). Finally, I present my findings as stories and attempt to derive learnings from these so that, looking backwards, we may go forwards; much like a report with vignettes (Stake, 1995). I am reminded that the "complexity of some lived moments" is not conveyed with theories. "You don't do that with a system of ideas. You do it with a story" (Coles, 1989, p. 18). Narrative inquiry will enable these stories that might, otherwise, have fallen between the cracks (Hanshaw, 2020, p. 97). Narrative inquiry will enable these stories to be told.

EDUBITS

Otago Polytechnic started to develop micro-credentials in 2018. It called them EduBits, as they were bite-sized bits of learning (though they were not initially, as discussed further below). Leader A was one of the key thinkers behind EduBits. He explained that they were developed as part of his growing interest in an alternative to mainstream education, for a sector that was increasingly viewed as unresponsive. Its aim was to increase people's engagement with learning and make education more accessible: "The answer just seemed sort of obvious to me. And so, basically, that led to me putting a little working group together at the Polytechnic, to come up with a concept of micro-credentials."

The concept and the brand were formed. Leader A explained that one way to get into market was to 'credentialise' skill-sets that people already possessed:

> That seemed like a good idea at the time, but it turned out not to be … we started off by stocking the shelves … with probably 40 or 50 micro-credentials that didn't have any micro-learning behind them … But there was very little interest for assessment-only micro-credentials.

Therefore, it would seem that learners, perhaps by their very definition, do not value a credential when there is no learning attached, thus the learning is at least as important as the earning. Manager A said that the assessment-only route was "a flawed model":

> I haven't seen one assessment go through without requiring further information ... the assessment only process is not functional. People need guidance ... it needs to be learning and earning, can't just be earning … It's a model that can't work if you don't have support.

Manager A said that she thought ākonga, the learners, as well as needing support, did not see the value in an assessment-only micro-credential. The lack of interest by learners in assessment-only MCs, with no learning attached, supports this assertion.

BUILD IT AND THEY WILL COME (ER … NO)

At a conference in Beijing, China, Academic A and Academic B offered the five-credit Level 3 *Plan and Deliver an Effective Presentation EduBit* (with no learning) to an audience of teachers. There was a QR code and an access code for the teachers to complete the EduBit for free. The EduBit involved uploading evidence onto the EduBits platform, and demonstrating competence in presentation planning, design, and delivery, in the form of documents (for example, PowerPoint) and a video of the final presentation. Successful candidates would be awarded the EduBit and a digital badge to display on their email, LinkedIn, WeChat, and similar places. No one took advantage of this opportunity. Why? Evidently, they saw no value in it. Academic A commented that a micro-credential must be "useful." Manager A said that it simply "lacked currency with employers."

If you are an educator, kaiako, of some standing and probably some years, you are no doubt respected as a practitioner, as a communicator, and as a conveyor of ideas. Thus, a five-credit micro-credential attesting to your ability to plan and deliver a presentation contains no usefulness, no value, and little if any currency. The EduBits shelves were stocked with many of these products.

Leader A explained that when in a hole, one should stop digging, but they continued to develop the assessment-only MCs in blind faith that they would gain traction. They did not. A change in strategy was thus called for, and it was decided to include learning, not just assessment, and to specialise in building and recognising emergent knowledge and skills, in a just-in-time training model: new stuff just when it was needed. One EduBit was just such a beast.

A key MC at OP in the early stages, the electric vehicle maintenance EduBit was designed to plug a gap (excuse the pun). There was an increasing need to service electric vehicles (EVs) in the growing EV market in environment-conscious Aotearoa New Zealand. However, your average garage had no knowledge of servicing these EVs. Electric vehicle maintenance was therefore an emergent space and it ticked the just-in-time training model box. Electric vehicle maintenance was included in the bachelor degree programme in motor engineering at OP; however, if you wanted your EV serviced on Friday rather than in three years' time, there needed to be a more immediate solution.

A powerful solution was developed in the form of EV maintenance MCs, as Leader A explained:

> I think I would still say that the most powerful uses around the emergent skill-set being on how you defined that powerful use, but from the point of view, that enabled exactly, exactly the requirements of the day, and to be captured.

Therefore, at last, the goose that laid the golden egg. Sadly, not:

> We trained up staff. We sent them to Australia to get specific training in electric vehicle maintenance. Worked it all out and did some target launch … we had it covered. Because the instructions to the staff were [that] there are no resources to be spared here. Get yourself sorted out. Get workshops nationwide. And nothing happened … Why didn't that happen? Oh, we can't find anyone to replace them [staff]. Taught me another learning. If you've got to run a micro-credential business, set it up as a separate business. And indeed, that lesson led to that happening.

Therefore, EduBits was developed into a separate legal entity in order to give it the capacity it needed in terms of resources, particularly human resources.

TIED UP IN KNOTS

The organisational and legal structure was thus created to give EduBits the breathing space and the traction it needed. However, the regulatory framework was not so simple. The New Zealand Qualifications Authority was yet to recognise MCs. It certainly did not believe they could or should be stacked into larger offerings at this time, though it has come round to acquiescence on this point over time.

Manager A explained:

> We had the tension also of NZQA, not picking this up. And so … you're unable to get that support or have them validated. So that has added to them not having the value that was anticipated. And also [the NZQA] originally stopping that idea of [their] being able to be stackable.

This limited their usefulness. "I think they [MCs] were probably ahead of their time," Manager A commented, a viewpoint echoed by a number of kaiako. Another issue was the NZQA insistence on regulating training schemes. Leader A explained the NZQA insisted on regulating the content, the learning that goes into a MC, as well as the assessment component. The regulator does not do this for other programmes, such as degrees, however, with MCs it was playing a heavy hand of regulating assessment and content. The regulatory processes involved were over-burdensome. Professional A explained:

> I think it's massively holding it back. Because it's a huge amount of bureaucracy. The level of application, the level of detail you have to go into for a micro-credential application to NZQA is almost as much as you need for a full degree … And the training schemes are the same … So what I find frustrating is that they are the same amount of work, you have to put in for five credits as 120 credits, it doesn't make any sense. And also the fact that some of these micro-credentials are courses within existing degrees, that are useful by themselves, I mean … they've already been approved … there doesn't seem to be to me a lot of point in going through another application. Why can't you just credential something that already exists within the degree?

INTERNAL KNOTS

Death by red tape was not confined to the regulatory landscape. Leader A said that Otago Polytechnic "over-cooked the process … we made it all too complex, even the assessment-only was too complex." He provided the anecdote of MCs he had developed to run alongside a Commonwealth of Learning project to develop a leadership programme for developing nations:

> And guess what? I started this exercise with what I want the graduate to look like. That was easy. Then I said, Okay, looking at this, I see four discrete parcels of learning. I write my micro-

> credentials, one page each. And I've been using them to sit on the left-hand side of my desk as I work on the programme, and they integrate, and they build to the whole for the whole project. Works a treat.

Thus, quite simple in their creation, yet constructively aligning the graduate outcome, the assessment, and the learning. Leader A commented that at OP there were "seven or eight pages of instructions for someone to get a five credit micro-credential," whereas with his own MC, the instructions "even with the evidence … two of them are three quarters of a page long [and another] one and a quarter pages. There's quite a lot of white space on the pages." Consultation requirements were also slowing the process. Professional A explained:

> I think one of the main things is the level of consultation that you have to do for any kind of NZQA application. So you have to consult with industry, community, Iwi and learners and provide evidence that what you're doing is fulfilling a requirement. And that takes quite a long time. But not necessarily a lot of hours, it's just because people don't get back to you, they don't provide you with enough information or you have to wait for the volume to come in. And then you have to synthesise it all. And that's really what a large amount [of the work] is. If it exists within an existing course, and you've got learners from outside [already] going, they want to do this course. That really should be enough information. So, reducing the requirements of the consultation would probably be good stuff.

Perhaps it is naive to expect the regulator to do anything else but regulate. Leader B commented: "I think the problem is, it's counterintuitive, because they live for approving stuff and having it on the desk and mulling it over. And I mean, that's their job. One has to acknowledge them." Leader A reflected that "unfortunately, we just seem incapable of getting micro-learning products on the shelf. So having made the mistake of assessment-only Edubits, we just needed to get one thing. We just couldn't get product, good meaningful product." The over-burdensome quality demands "killed it stone-dead" according to one leader.

FINAL TWO NAILS

Fate hadn't finished with EduBits quite yet. There were two final nails in its coffin. "The restructure of the vocational education sector has put everything up in the air … micro-credentialing is being lost," reported one professional working for Te Pūkenga. They went on to say, that COVID-19 was the "final nail in the coffin" for EduBits.

POSITIVE AFFORDANCES

However, it was not all bad news: some MCs gained traction, and these contained learning as well as earning, had value, and were useful. Professional A commented that "the ones that have been successful are ones where the company doesn't offer the training themselves, but they want to upskill an entire population because of a strategic goal." Examples of this successful upskilling include a care home organisation that wanted to upskill staff in dementia care. Another was a MC in wound care. There was also a successful MC in speaking up about site health and safety for minority workers working on construction sites. These are undoubtedly useful, meaningful small chunks of learning and assessment. It would seem that upskilling and learning at some point in time is more important for employers and ākonga than the more beautiful but more limiting development and recognition of emergent skill-sets, just in time.

Leader A reflected that focusing on the emergent knowledge and skill-sets only was likely a mistake, and the EV EduBit blinded them on that. It was "a strategic limitation" and if there was a next time, he would focus on upskilling and integrating MCs into the polytechnic's programme offerings without NZQA accreditation.

DISRUPTIVE AND PUTTING LEARNING IN THE HANDS OF THE LEARNER

One of the more powerful affordances of micro-credentials is that they empower the learner. Professional A explained:

> It puts the learning in the hands of the learner … They have much more control over what they're choosing to learn, as opposed to the institution – that's extremely disruptive … if you're learning in the workplace, you do know what you need to learn, you know, you're an adult, you can identify your strengths and weaknesses, you know exactly what you need to learn to get where you're going. So, I think it could be pretty powerful. But, it could be very threatening to existing power structures within education.

Micro-credentials therefore afford great freedom to the ākonga, the learner, to choose their path.

FEAR OF FAILURE

A number of respondents commented that possible failure was one of the major determiners of learners never enrolling on, or completing, a programme of study. On the effectiveness of micro-learning, Leader A said:

> The fear of no success keeps a lot of people out. Failure to get success drives them out. And I think that there's no doubt in my mind at all of the ability to put together packages of learning that are smaller in scope, not necessarily in time.

Though time is a factor, he explained:

> The other aspect is this, that, to the extent that micro-learning is taking place over a shorter chronological time, then one minimises the risk of life's events getting in the way. And, and often again, that's the case for our priority learners. They're either coming, not well prepared without experiencing success, or they're in the context, where the life is constantly being disrupted … So, I think we have got a tool for success. And for success, which helps, because we're looking at stackable design. And people know, I do this. I can look in the mirror and see success. And then I do the next bit. And I can see success … and that's why I think the next step is to be in a discerning way, go back and start to look at redesigning some of our programmes of learning. And particularly, where we're finding very high levels of priority groups' success or very low levels of priority group participation.

Therefore, micro-credentials are both the disruptor and afford opportunity by placing learning in smaller, bite-sized chunks, which are also more affordable, and enabling disadvantaged groups to succeed. The idea of re-designing the polytechnic offerings in this respect, and through this lens, is an exciting one and a challenge yet to be enacted.

MEASURING MICRO-CREDENTIALS AGAINST AGREED DEFINITIONS AND AFFORDANCES

It will be helpful to see how a number of Otago Polytechnic micro-credentials stack up (again, excuse the pun) against some of the agreed measures of a MC. Some of the measures referred to earlier (for example that a MC is a documented statement, owned by the learner, with agreed learning outcomes) are not included in Figure 1. They are common to all in the list and are therefore not a valuable differentiator. The same could be said of the characteristic of stemming from a trusted body, however, it is good to remind ourselves of that key quality.

	Planning and Delivering an Effective Presentation	Electric Vehicle Maintenance	Caring for Those With Dementia	Wound Debridement	Speaking Up in the Workplace: Construction Site Health and Safety
Training Schemes/ Learning attached	x	✓	✓	✓	✓
Trusted body	✓	✓	✓	✓	✓
Evidence of need	x	✓	✓	✓	✓
Agreed Quality Assurance Principles	✓	✓	✓	✓	✓
Building and recognising emergent knowledge or skills	x	✓	x	x	x
Just-in-time training/ recognition	x	✓	x	x	x
Upskilling	x	✓	✓	✓	✓
Commissioned by client	x	x	✓	✓	✓
Useful	x	✓	✓	✓	✓
Gained traction (some learner completion)	x	x	✓	✓	✓

Figure 1. Otago Polytechnic Micro-credentials measured against agreed measures (Author generated).

Micro-credentials that gained traction all possessed the following characteristics:

- ✓ the training Scheme/Learning was attached to the MC,
- ✓ they were administered by a trusted body, with
- ✓ agreed Quality Assurance Principles,
- ✓ they involved upskilling in the workplace,
- ✓ they were commissioned by a client, and
- ✓ they were deemed useful.

The MCs that did not gain traction had one thing in common:

- **x** they were not commissioned by a client.

Electric vehicle maintenance literally ticked every box, except that it was not commissioned by a client. Human resources at OP were not deployed to create a client base despite instructions to do so. Building and recognising emergent skill-sets and just-in-time training/recognition were not success factors in these cases. However, that does not suggest that these are not powerful affordances of MCs.

CONCLUSION

At the start of this inquiry, there was no clear definition of micro-credentials (MCs), and no agreement on how they should be regulated, or whether they could be stacked into a larger credential. Now there is largely consensus on these matters.

In this study, we have followed the trajectory of micro-credentials at Otago Polytechnic. I was tasked with answering the questions: why MCs had not gained the traction that was hoped of them at OP, and what was needed to give them that much-needed traction.

Why micro-credentials have not gained traction at Otago Polytechnic

The first error was developing assessment-only micro-credentials, as leaders and managers admit. Ākonga, learners, evidently saw no value in something that had no learning attached and assessed them in knowledge or skills that ākonga evidently already possessed. Despite this, OP continued to develop assessment-only MCs.

The Electric Vehicle (EV) Maintenance MC had much more promise: it was developing and recognising emergent skill sets in just-in-time mode. However, despite instruction from leadership, human resources were not deployed in promoting these MCs to the market.

The regulatory landscape greatly hindered the development of MCs, which took much longer to develop than anyone at OP had expected. The slowness of the regulator to agree to recognise MCs, or accept they could be stacked, further slowed matters. Many respondents said EduBits was ahead of its time. The internal quality control structures at OP further thwarted progress, which one leader described as "exquisitely complex." The distraction that has been the formation of Te Pūkenga and the effects of COVID-19, have also had a deleterious effect on MCs at OP.

Positive affordances of MCs have been identified, such as their disruptive nature in putting ākonga at the heart of their learning and re-packaging learning into more manageable, more affordable chunks. One leader spoke of the power of integrating MCs into the polytechnic curriculum, and re-writing existing curricula into a series of stackable MCs.

Measuring a sample of MCs against agreed definitions/measures of them demonstrated that there was traction in the form of learner engagement when learning was attached to the MC; it involved upskilling in the workplace, they were commissioned by a client, and therefore deemed useful.

What is needed to give them traction

The stories told in this narrative lead us to understand that in their future development in Aotearoa New Zealand, micro-credentials can be better leveraged if and when they contain value and are useful. This is when

- learning, as well as earning, is attached to the MC,
- the MC involves upskilling, and, ideally, is commissioned by a third party,
- resources are appropriately deployed and appropriate internal structures created to afford the timely development of MCs,
- there is a lighter touch to regulation, both within polytechnics and with the regulator; including,
    - reducing the amount of information and consultation required to register a MC, and
    - not requiring an existing qualification being micro-credentialed within an institution to undertake the same approvals and consultations, from scratch, as a new one,
    - not requiring the contents of a MC (the training scheme) to be regulated in the same way as the credential,
    - reducing the length and complexity of learner/assessor instructions in a MC, and
- existing programmes are re-packaged into a series of stackable MCs to afford participation, equity and access to all, not just "the lucky few" (Oliver & UNESCO, 2022).

Perhaps EduBits were ahead of their time. However, nothing is wasted. In the words of Leader B: "I don't think we should feel we've failed; I think we were the incubators, the ideated and the incubators. And we have succeeded because they're going national." How that future endeavour proceeds, will largely depend on how, or whether, we can learn from the lessons of the past.

FUTURE RESEARCH IN MICRO-CREDENTIALING AND DISRUPTIVE INNOVATIONS

Further study into the power of micro-credentials in building and recognising emergent skill-sets and just-in-time training/recognition will be valuable, as will studies into integrating MCs into the mainstream curriculum and re-packaging the curriculum to make it more accessible to learners. Greater consideration should also be given to consultation with employers, as the employer voice seems pivotal to the future success of MCs.

Jeremy Hanshaw is a transdisciplinary international education specialist and Fellow of the Higher Education Academy. He works in capability building, quality enhancement, academic research, and transnational and international higher education. Based in South East Asia, Jeremy is a former learning and teaching specialist at Otago Polytechnic, where he is completing the Doctor of Professional Practice degree. His research interests include Micro-credentials, and Narrative Inquiry as a means of excavating and illuminating learner and practitioner stories and journeys.

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