Signals and Noise: Communicating achievement through alternative credentials

‘Signals and noise’ represents an initial conversation with Martin Bean, facilitated by Sheryl Grant and Rupert Ward, and was a way to reflect back, and look forward, on the development of alternative credentials. In particular, the paper focuses on alternative credentials in North America, Europe and Australasia. The conversation provided clarity on the ‘signals and noise’ that represents our positioning of this paper on badges and micro-credentials. Learning in life was previously aligned to societies defined stages in our development and as a consequence, for most, predictable. For example, Paiget (1964) broadly define our learning in early childhood (0-7) as being represented by play, followed by further learning operational phases (7-24). Our formal learning typically continued into teenage and early adult years. The learning bridged us into the workplace (24 to 65), and finally we retired. A minority of learners gained an undergraduate degree. That was the end of an education process, for most in society, and this provide a unique opportunity to demonstrate credentials for graduate employment. Undergraduate degrees, and associate’s degrees, remain important ‘rites of passage’. The challenge is when people are increasingly facing many changes in their careers paths and this is compounded when technical skills typically have a shelf life of two to five years. It is clear that learning for life has gone from ‘nice to have to must have’. However, our core educational systems are designed for ‘blocks of learning’. We have a disconnect, in part, between the labour market supply and demand, which reinforces inequity in our society. People typically progress through their networks, and associated alumni organisations, not through merit and achievement.

Inequity and the democratisation of education has always been central to addressing these issues. For example, Microsoft has consistently focused on providing affordable, high-quality education at scale through the utilization of technology. Such an approach is deeply rooted in the Open University and that led to the development of FutureLearn. An initiative aimed at extending the value of education from their approximately 300,000 students (Open University, 2010) to millions of students worldwide (FutureLearn, 2013). RMIT in Australia is also aligned to this approach in the positioning as a dual-sector university with a focus on education for all. Such universities seek diverse avenues to create

opportunities for its students. Reflecting on research from the World Economic Forum (WEF, 2020), the OECD (OECD, 2019), LinkedIn (see, e.g., LinkedIn, 2019; Roslansky, 2021), Education Design Lab (Education Design Lab, 2014; Education Design Lab, 2019), America Succeeds (2018) there has been a significant shift towards skills-based hiring as highlighted by organisations such as SHRM (Arnold, 2018), in US university reports (Gallagher, 2018; Fain, 2018), UK government (DMCS, 2019) and think-tanks such as NESTA (NESTA, 2017). The T-shaped graduate (Gardner and Estry, 2017; MacCraith, 2016) is aligned to the needs and purpose of global labour markets. The T-shaped graduate describes people who can solve problems, lead, collaborate, demonstrate empathy, be innovative and work across different cultural contexts. In order to be able to confer digital badges for these types of skills there is a need to partner with a digital badging platform, a granular based approach toward curriculum design, and rapid deployment of customisable learning pathways. To understand how many leading universities are pioneering in education for all we need to understand the journey of alternative credentials up to this point.

A brief history of alternative credentials

Since the 1990s there has been a link between alternative credentials and labour market signals and economic prosperity for the individual (see, e.g., Kyle, 2017; Green, 1999; Quan *et al*., 2007; Xu and Trimble, 2016; Castano-Munoz and Rodriguez, 2021). For example, in the very early stages of I.T. certifications, Novell, which at the time dominated the computer networking market, realised that they could not sell their technologies around the world unless they had people that knew how to use them. More importantly, there was no proxy for employers for the skills they required. There was no unified approach for an employer to identify in the labour market whether somebody was capable of delivering the services to support the technology. Universities and colleges were not teaching the skills that were aligned to the labour market. In comparison Novell did something considered ‘ground-breaking for the time’, which was to launch alternative credentials based on quality learning content and rigorous assessments. They also trained people, built training channels, and credentialed the instructors (Wellington, 1999).

A decade later, in 2010, the Mozilla Foundation and HASTAC, with funding from the MacArthur Foundation, launched the open digital badging movement, a social innovation that focused on a webified system of issuing, sharing, and displaying alternative credentials aligned to open technical data standards. Mozilla developed the initial open technical data standards and prototyped early iterations of the open badges infrastructure, whilst HASTAC administered the Badges for Lifelong Learning initiative. A 'grant-making' effort that awarded funds to the world's first digital badging programs (Grant, 2014). The initiative created an international movement that sparked cooperation across efforts often siloed from each others' developments. For example, this included competency-based learning, personalised learning, credit for prior learning, open education resources, authentic assessment, massively open online courses (MOOCs), learning analytics, and eventually skills-based hiring. Alternative badged signals provide the labour market with information on people's skills and competencies. Microsoft's educational strategy included alternative credentials, and digital badges, as an approach to disrupt the standard educational process to allow people to scaffold throughout their lifelong learning journeys. Using a series of recognizable, demonstrable, expressive, verifiable, discoverable signals between people, skills, and competencies and the labour market. This enabled, in part, a movement away from exclusively traditional markers such as college degrees, university degrees (see, e.g. Hufferd, 2022; Credential Engine, 2022).

Micro-credentials provide universities with a way to enable '*on ramps' into* universities. In particular, by providing learners with the ability to amass achievements. It provides a similar approach to how advanced placement courses function in the United States (Klopfenstein and Thomas, 2009). The main difference is a design approach that is more focused on micro-courses. Often employers typically recognise graduates' technical skills but struggle to identify other organisational and human capabilities (e.g., Daniel, 2021; Cole *et al*., 2021). To address such concerns, it is necessary to develop a set of micro-credentials based partly or wholly on digital badges and to have these recognised on the transcript of the student. These markers of capability increase learners' attractiveness in the labour market. Increasingly, therefore, learners are able to augment rigid university programmes that are difficult to

influence, by surrounding them with digital badges and micro-credentials.

Challenges and future directions

When people are searching for alternative credentials and badges it is critical to harmonise, where possible, with the traditional education systems but also ensure their personal learning needs are achieved. Reflecting back to the 1980's, the American Council on Education (ACE) in the United States (Ryu, 2013), has been helping organisations tag their programmes with understandable credit that colleges and universities could use for advanced standing. You need the definitions, and the mechanisms can be put in place, but the regulations and modes of funding also need to change to achieve the desired outcomes. Transferability remains a key issue driving change in this space. A sustainable way to support a learner to exchange between institutions and programmes is through the development of a national taxonomy. Bean and Dawkins' (2021) report explores the need for rich skill descriptors (RSDs) and skills taxonomies (see, e.g., Blakely and Branon, 2022; DeMark and Kozyrev, 2021). This can become a key enabler for industry-informed education programs and a recognised approach as a currency of exchange for skills in the labour market, as can the methodology of skills profiling, recently identified in the UK QAA Report (Ward et al., 2022). Alignment of alternative credentials and qualifications remains in its early stages of development (Pupinis & Kirdulytė, 2020; Trepulė *et al*., 2021). Even with such developments traditional institutions still give end-point awards such as degrees. Trends indicate a sustained shift towards scaffolding of learning credentials and associated mechanisms,and it is a flawed assumption that a lifelong learner-earner sees it necessary to have traditional awards. For example, the initiatives of Google certification (see, e.g., Lorh, 2022; Pichai, 2021; Gevelber, 2022), and associated labour market outcomes of learners compared to a traditional college degree (Hess, 2020; The Economist Intelligence Unit, 2014; Akhtar, 2019) provide positive indicators. Firstly, however, we need to try to change learners' perceptions of educational value and the relevance of alternative credentials for employment and career development (Strada Education Group, 2019).

There is now also a shift beyond individual micro-credentials (see, e.g., McGreal and Olcott, 2022; Oliver, 2022; Brown, Mhichil, Beirne, and Mac Lochlainn, 2021) towards personalised learning pathways (Gibson *et al*., 2016). Learners are scaffolding micro-credentials into pathways that have coherence and are understandable to educational institutions and employers (Chakroun & Keevy, 2018). Open standards and interoperability remain central to the development of learning pathways (American Workforce Policy Advisory Board, 2020; Digital Credentials Consortium, 2022; Caccio *et al*., 2022). Learners are increasingly ingesting open badges from across the ecosystem into coherent pathways but there remain significant challenges. Digital wallets and learner employer records (LERs) continue to be rudimentary (Jobs for the Future, 2022; American Workforce Policy Advisory Board, 2020) in their ability to be able to connect and make sense of the micro-credentials, or alternative credentials, and experiences that people amass in their life. Another challenging area is the role of competency frameworks where interoperability and compatibility are limited, and a range of different approaches need to be accommodated within global standards (IEEE, 2022). Competency frameworks and job role requirements continue to struggle with educational qualifications alignment. For example, educational institutions continue to focus on capability development rather than the application of these capabilities as competencies. We need mechanisms to bridge this traditional divide between the capability-competency chasm for learning and earning (Ward et al., 2021). There continues, therefore, to be a need for open rich skill descriptors (see, e.g., Blakely and Branon, 2022; DeMark and Kozyrev, 2021) and mechanisms that enable clarity on skills development such as skills profiling (Ward *et al.*, 2022). Some professions and professional bodies maintain competency frameworks, and skill descriptors, as an integral part of supporting professional standards. For example, the Digital Skills Organization in Australia (Schueler, 2021) actively works with industry to maintain and refresh the competency frameworks and skills for the ICT industry. The signals for the future are that the competency frameworks, represented by many professional bodies, provide complex and rigid approaches to identifying quality providers within professions. Professions, guilds and others have always seen their role as being able to describe the skills, capabilities and competencies for employers that identify professional standards and developments. Looking forward, we still need to see a continued trajectory for open, flexible and interoperable systems, andintegral to

this are competency frameworks, and skill descriptors, that can intuitively adapt rather than being revised every three to five years.

The Bean and Dawkins (2021) report identifies the increasing need for industry to collaborate in a more closely aligned way with educational providers. Disruption is always challenging and scales through increasing need. For the lifelong learner micro-credentials, and digital badges, are showing unprecedented growth in areas of chronic skills gaps that include: IT and data, sales and marketing, operations and logistics, manufacturing and production, and customer-facing and front office (ManpowerGroup, 2022). Labour market shortages are the fertile ground for innovations in micro-credentials. Lifelong learners are increasingly seeking universities that are focused on 'dialing in to industry', and that 'dial into labour market shortages'. This is also aligns to blockchain developments that provide a way to embed depth into the interface between lifelong learners and the labour market (see, e.g., Jirgensons and Kapenieks, 2018; World Bank, 2021). Reflecting back on Google Professional Certificates, offered through Coursera, they overshadowed all universities in the world in terms of total student count, with well over 70 million student registrations (Coursera, 2020). We can critique MOOCs, but they are all conferring micro-credentials and digital badges. They are all conferring industry understood credentials. It is the old system grading the new system, and scale being interpreted in old ways rather than scale being interpreted in new ways, the system is talking to itself rather than evolving to meet the changing environment.

The skills that employers are seeking are those that keep them learning fit (Ward, 2020). Micro-credentials provide a way to apply capabilities as competencies that lead to impact (Ward et al., 2021). In addition, the micro level approach is able to adapt, survive and thrive in a rapidly changing world (OECD, 2021). It is proposed that an undergraduate degree or certificate of any type should help a learner become learning fit. If you could redesign every undergraduate programme from the ground up, you would immerse learners in understanding how to learn; embedding adaptive learning (Ward, 2020). PwC, one of the UK's largest graduate employers, identifies one of the most valuable attributes of a graduate is the ability to 'learn for life'. PwC has been gradually removing academic

qualification criteria from their selection process and have moved further away from qualifications since the pandemic (PWC, 2022). ‘Learning for life’ is how we should be preparing our young learners. For example, teaching learners to triangulate data across multiple data sources to arrive at their own version of reality is crucial for future learning. Learning fitness and triangulating data are crucial to designing undergraduate qualifications because they enable learning to remain agile and fit for life as you develop self-awareness, self-reflection and self-regulation (Ward, 2020). Learning increasingly needs to focus on load balancing that flows through primary school, middle school, high school, undergraduate, postgraduate and lifelong learner activities. The relevance and use of skills in the labour market is increasingly short (WEF, 2017), and reskilling and redeploying our skills to new contexts requires a breadth and depth of both subject-specific and transferable skills (Hammer *et al*., 2021). The need to make sense of digital badges and micro-credentials inside traditionally regulated and governed systems is the most significant challenge that bridges adaptability with quality assurance. Australia has now embedded micro-credentials as part of their formal system, and funding them as part of the formal system. The national level framework in Australia is pioneering a micro-credentials path underpinned by adaptability and quality assurance. We can see the emergence of a new educational approach being adopted. For example, Google has Professional Certificates that provide learners with a modern take on what was being done at Novell in the 1980’s. Both reflect radical change in skills provision through major changes in the labour market.

We also need to reflect on the quality of micro-credentials. In doing so it is important not to focus on the digital badge or the micro-credential. The current focus is increasingly on the issuing organisation, or governing bodies, and associated quality assurance. When the brand recognition is recognised we can shift focus from micro-credentials to issuing digital badges. For example, open badges are underpinned by open data. This is becoming increasingly accepted and replacing, for some learners, static degree certificates that are a ‘low-resolution analogue signal’. Quality of micro-credentials, as discussed, is focused on the organisation and their underlying data in the digital badge. Future badging standards (1EdTech, 2022), skills profiling (Ward et al., 2022) and rich skill descriptors (DeMark and Kozyrev, 2021) will increasingly provide more discoverable, understandable, rigour in

identifying the quality of micro-credentials. The next frontier in the development of micro-credentials moves us to innovations in continuous assessment that are challenging but naturally aligned to micro-credentials and associated digital badges.

Concluding Comments

The future of micro-credentials needs increased investment in internationally recognised strategic frameworks, taxonomies, and quality assurance standards. Such developments, due to the complexity of increasing micro signals between individuals and institution, and due to the rapid adoption of micro-credentials, are being interpreted across institutions in a variety of ways. Institutions need to reflect on strategic intent in building micro-credentials initiatives. Internationally recognised strategic intent may include: improving the graduate outcomes of students, addressing the needs of industry and lifelong learners, professionally developing in the labour market, creating mechanism to increase human skills development in programmes and broader curriculum reform, widening participation for underserved communities, and creating new income streams for adjacent markets. Even though we can recognise many drivers, a future priority for educational institutions is improving employment outcomes. There is an unprecedented international priority for lifelong learning and for extending each learner-earner. The risk mitigation strategy for institutions is to be very clear about what your strategic intent is for micro-credentials, and how to enable a transition to a granular based approach towards curriculum design that ensures adaptable and future ready learners.

To communicate achievement through alternative credentials remains challenging and hence the need for reflections on the ‘signals and noise’. Alternative credentials require integration with existing institutional standards that embeds both micro- and macro- credentials as a way to supporting lifelong learning. Such an integrated approach is challenging but this provides clear ‘signals’ and pathways, and reduces the ‘noise’ for learners. Micro-credentials need to maximise value for those learners with the micro-credentials and as a consequence needs an intuitive design towards labour market dynamics. Micro-credentials need to be underpinned by a granular based approach towards curriculum design that is focus on adding value at ‘every step of the learning journey’. This is beyond

advanced placement courses in the US that focus on credit that leads to a degree. For example, online workforce programmes, underpinned by micro-credentials, are increasingly focused on enabling immediate value added aligned to the labour market. The national qualifications framework in New Zealand (Tertiary Education Commission, 2019) and Australia (Australian Government DoE, 2020) provides clear 'signals' for the future of an integrated approach to micro-credentials and that moves beyond the 'noise' for lifelong learners. We are globally moving towards a micro-credentials 'playbook' where, at the end of each chapter, there is a checklist and questions that need to be asked are answered. This paper is another step in identifying some clear 'signals' and looking beyond the 'noise' to support lifelong learners on their journeys.

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