



The best of both worlds? Integrating VET and higher education – support document

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This document was produced by the author(s) based on their research for the report *The best of both worlds? - Integrating VET and higher education* and is an added resource for further information. The report is available on NCVER's Portal: <https://www.ncver.edu.au>.

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This document should be attributed as Hodge, S & Knight, E 2021, *The best of both worlds? - Integrating VET and higher education - support document*, NCVER, Adelaide.


This work has been produced by NCVER on behalf of the Australian Government and state and territory governments, with funding provided through the Australian Government Department of Education, Skills and Employment.


Published by NCVER, ABN 87 007 967 311

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Literature review

Background

The movement of students between the vocational education and training (VET) sector and the higher education (HE) sector has been of interest to researchers and policy makers for many years. Factors investigated have included:

- Estimations of the volume and patterns of student movement, in both directions;
- Investigations of the reasons students move between the sectors;
- Exploration of the barriers and enablers of student movement between the sectors; and
- Descriptions of formal articulation, credit transfer and dual sector qualification arrangements.

This research set out to identify and examine existing arrangements of integrated VET and HE qualifications (and other credentials) as well as flexible entry/exit points in VET and HE to determine if and how these could be implemented more broadly.

In the *VET Reform Roadmap (2020)*, the Skills Senior Officials Network points out that Australia's VET system is facing a new kind of challenge. This challenge, the 'fourth industrial revolution' brings with it unprecedented demands on individuals, industries and the economy. For Australian VET to continue to play a strong role in supporting development of skills that meet these demands, certain changes are envisaged to pave the way to a more responsive system. These changes concern the system's relevance, accessibility and quality. In detailing the components of this vision, *stronger alignment and integration between VET and higher education* is highlighted as one of seven 'destinations' to be reached by following the roadmap.

A number of factors underline the importance of this destination. Currently, Australia's post-school educational landscape is dominated by 'binary' of two distinctive types of provision: VET and HE (Parker et al., 2018). They pursue separate goals, have different histories, are subject to different policy and governance frameworks (Hodge et al., 2020), operate in different markets, are distinct in terms of curriculum, pedagogy and assessment, attract different kinds of students, and bring different benefits to individuals, industry, society and the economy. Although these benefits in part reflect the advantages of specialisation, there are associated issues that impede the effectiveness of the whole post-school skill and knowledge ecology to respond to contemporary demands.

Of these issues, a major one, is want of parity of esteem between VET and HE. Recent research by Billett et al. (2020) and Gore et al. (2018) suggested young people, their family, peers and teachers value the sectors differently in their advice and decision-making about post-school education and training. The binary of VET and HE imposes stark choices on school-leavers, reinforcing perceptions of difference. Perceived lower status of VET introduces a range of distortions into the post-school educational environment that affects self-esteem of students, impacts supply of skills to industry, and introduces retention and other issues in providers. Stronger alignment and integration between these sectors may serve to break-down perceptions of a differential favouring HE.

A second issue is evident at the level of individuals negotiating careers in the fourth industrial revolution. Building the skills and knowledge to succeed in this environment is an ongoing challenge and will call upon well-developed career management competencies. The future of work (Avis, 2018) does not now and is unlikely to again involve training for a single role pre-vocationally and undertaking no new training. With the speed of innovation and technological change it is critical that the worker of the future

both has a solid base on which to build a life of learning and also the opportunity to take advantage of learning opportunities presented over the life course. A stronger alignment and integration between the sectors can facilitate individual skill and knowledge development across contemporary careers in a future of work that will require responsiveness to change.

A third issue is the opportunity lost to supply industry with skills and knowledge that are unique to the middle-range of qualifications that typically span the offerings of VET and HE providers. Currently, VET and HE sectors offer a full suite of programs, with contiguous and sometimes overlapping offerings at the mid-range band of qualifications (diploma through to associate degrees). However, development of deep and coherent knowledge and skills across the fault line between the sectors is problematic. Pathway arrangements go some way toward engendering seamless development (Ithaca Group, 2018). VET providers that have expanded into bachelor degree provision present a different model, while dual-sector universities have created skills trajectories in the mid-range that constitutes another model. So, while promising starting points are evident, stronger alignment and integration between VET and HE sectors promises to unlock the full benefits of mid-range qualifications for industry and the economy more broadly.

This review seeks to highlight key challenges facing integrated qualifications to inform the exploration of identified examples of integration. The review begins with a background section that outlines the formation and key characteristics of the binary characterising the Australian tertiary field. The next part addresses recent reviews and reports as well as some academic literature concerned with the structure of post-compulsory provision. These different types of contributions can be viewed as helping to delineate problems of the binary environment and indicating solutions. The final section considers specific challenges facing institutions engaged in the design and delivery of integrated qualifications. This section will inform detailed questioning of institutional participants in the research.

Australia's binary tertiary field

In Australia, the field of post-compulsory or tertiary education and training, presents a complex landscape marked by a clear division between vocational education and training (VET) and HE. In the language of contemporary stakeholders, VET and HE are referred to as 'sectors'. But the obvious binary aspect of the tertiary field should not be taken as an exhaustive characterisation. For instance, a distinctive type of provision Brennan (2016) terms 'continuing professional development' has been evolving more or less autonomously. Again, a separate 'adult and community education' movement with its own history and traditions is part of the tertiary field, and has even been called the 'third sector' (Hodge, et al. 2019). Apart from these distinctive forms of provision there is a possibly vast field of non-formal and informal provision, including in businesses (Misko, 2008). So, while the binary is one of the most striking features of tertiary education and training in Australia, it does not fully encompass the rich diversity of learning undertaken by adults in this country.

The contemporary VET sector in Australia has been shaped by many factors over time. Goozee (2001) describes a patchwork of types of technical education with a history stretching back to the early 1800s that included forms of apprenticeship imported from Britain that called for the establishment of industrial schools, and the growth of the school of arts and mechanics institution movements (derived from Scottish and English models respectively). By the end of the 1800s there were already inquiries being set up to investigate the effectiveness of technical education in colonial jurisdictions. For example, the Fink Commission was set up in Victoria in 1899, 'following pressure from a wide variety of interest groups that were concerned about the need to improve and expand technical education' (Goozee 2001, p. 14), with two royal commissions into the apprenticeship convened in NSW in 1912. An important effect of these inquiries was a move toward (state) government control of technical education. The First and

Second World Wars brought Commonwealth involvement in technical education to boost skills for the war efforts, but for the most part, state governments gradually took responsibility for training. After WWII, state governments systematised technical education within their jurisdictions.

It was not until the 1970s that the Commonwealth government again took a serious interest in technical education. Under the influence of the Kangan report of 1974, a national vision of 'Technical and Further Education' took shape. Substantial Commonwealth funding flowed from this initiative, establishing a sector distinct from school education, the Colleges of Advanced Education and the universities. This vision came under pressure a little over a decade later in the context of national economic difficulties and the perception that existing arrangements were failing to supply the skills necessary to secure Australia's place in the new global economy. A series of Commonwealth government policy papers that started appearing in the late 1980s articulated a new vision of 'national skills formation' that envisaged much greater involvement by employers and unions in training (Dawkins and Holding 1987, Dawkins 1988, 1989). The new vision not only expanded the range of stakeholders involved in training, but sought to incorporate both public and private provision within the new system of Vocational Education and Training (VET). Although there have been many inquiries and reports, and waves of reform in their wake, the essential vision promoted by Dawkins remains in place for contemporary VET. The sector has been formed progressively in a process that has brought more and more types of provision and types of stakeholders under a single framework of skill formation in the service of economic development.

Australia's HE sector developed along quite a different path, but some contemporary features are shared with VET. For many years the sector was identified with university provision. Forsyth (2014) describes early small scale initiatives that saw a university established in each of the six Australian states by 1911, with the first inaugurated in Sydney in 1850. These institutions were modelled on centuries-old traditions of university provision in Britain and Europe, but their character was shaped by Australian conditions and currents of reformist thinking about the purpose of universities. According to Forsyth (2014) the universities of the Australian colonies were part of a broader effort to bring civilization and Christianity to the antipodes, and were positioned to develop a local elite capable of leading and governing. The six state-based universities remained the basis of HE in Australia until after the Second World War, from which time the Commonwealth government took a greater role in financing universities and leading national HE policy development. Growth of the population and greater awareness of the importance of professional learning and research drove expansion of the sector, with the original six institutions (which originally boasted enrolments of around 3000) augmented progressively until by 1960, there were 10 with enrolments growing strongly nationally to 53,000 students. By then, the Commonwealth government had established the Australian Universities Commission, advising the government on HE policy, and overseeing further expansion of the sector. A further nine universities were established by 1975 when national enrolments stood at 148,000.

Along with expansion of the university sector post-1960, a new type of provision emerged in the wake of the Martin Committee report (1960) set up to advise on expansion of HE (Meek, 1991). That committee recommended creation of a new type of institution that focused on teacher preparation and more vocational types of professional learning to be distinguished from more traditional and research-intensive institutions - an initiative that mirrored a similar distinction set up in Britain. Colleges of Advanced Education (CAEs) resulted from this work, and were intended to be the site of the bulk of expansion expected. Commentators refer to the HE system in Australia at that time as a 'binary.' In the mid-1970s the Commonwealth government instituted significant reforms in HE, including abolition of student fees, a funding model that encouraged state-based teachers' colleges to merge with CAEs, and a shift in funding responsibility so that the Commonwealth now took responsibility for nearly all HE funding. According to Meek (1991) there was stagnation in the binary HE sector from the late 1970s through to early 1980s

related to a national economic downturn. The Fraser government forced mergers of the nearly 30 CAEs to manage costs, but more radical reforms were proposed by Dawkins, with a unified HE system envisaged in the 1987 *Higher Education: a policy discussion paper*. The new vision of HE projected further expansion but along with shared responsibility for resourcing, resulting in the introduction of an income-contingent student loans scheme. The new system stimulated the establishment of Australia’s first private university (Bond, in 1989) followed by establishment of a Catholic university in the early 1990s. According to Meek (1991) at that point,

Politicians are staking their hopes for economic recovery on industrial and technological growth, and many believe that higher education can participate directly in economic recovery through training the right sort of graduates and through engaging in the right sort of practical and applied research. (1991, 470)

For Meek, this overarching ideology of HE and funding and the regulatory arrangements instituted by the Commonwealth government from the late 1980s spelt the end of the binary HE system. The new unified system witnessed the transformation or amalgamation of CAEs into universities, and a greater reliance on private funding for the system, including emergence of private forms of HE. The evolution of HE in Australia reflects developments in other western nations, with Trow (2007) classifying these broader developments as the shift from ‘elite’ to ‘mass’ to ‘universal’ HE systems. Marginson (2016) characterised the most recent phase in terms of ‘high-participation’ systems, and treated Australian HE as an example. Marginson cautioned against interpreting the growth of HE as solely a result of government intervention (which he shows is quite disorganised in many jurisdictions), but rather a matter of the social demand of increasingly affluent populations.

The two parts of Australia’s binary tertiary field are subject to the common Australian Qualifications Framework (AQF) which essentially covers provision in both parts of the field. This framework was one of the first in the world and is internationally recognised (Tate & Greatbatch 2020). The AQF provides a matrix to visualise tertiary provision, covering qualifications across all stages in the education system, including VET (predominantly 1-6) and HE (predominantly 6-10). Each of the individual sector regulators makes use of it to help specify the nature of particular qualification types, each being tied explicitly to an AQF level. The AQF characterises each level in some detail, providing a benchmark for judging the preparation of students prior to enrolment in institutions.

Table 1 Australian Qualifications Framework Levels, VET Qualifications and HE Qualifications

AQF Level	VET Qualification	HE Qualification
10		Doctorate
9		Masters
		Bachelors Honours Degree
	Graduate Certificate	Graduate Certificate
8	Graduate Diploma	Graduate Diploma
7		Bachelors Degree
6	Advanced Diploma	Associate Degree
5	Diploma	Diploma
4	Certificate IV	
3	Certificate III	
2	Certificate II	
1	Certificate I	

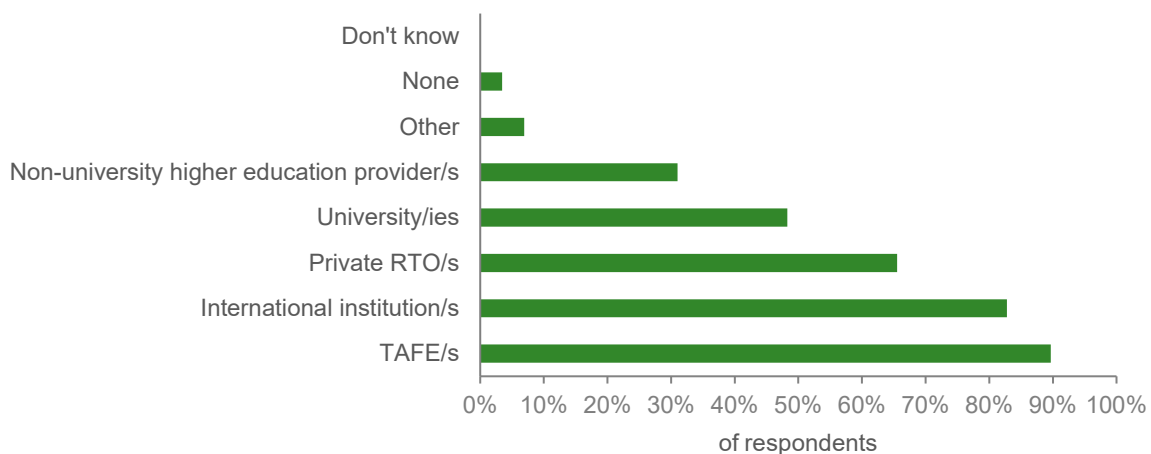
(Adapted from <https://www.aqf.edu.au/aqf-levels>)

Apart from guiding regulation of qualification types, and providing a high-level view on what skills and knowledge students possess upon graduation from a given qualification, the AQF clearly signals the

relationship between VET and HE, with VET positioned as the provider of lower-level qualifications. In a sense, the AQF serves to normalise the problem of sectoral parity of esteem. Taken in a historical perspective, the AQF reveals an upward trend of VET qualifications (into the AQF level 8 band) and HE's downward trend into the realm of diploma provision. A greater amount of 'overlap' between qualifications of the two sectors is evident over time.

Recent work on credit pathways for the recent AQF Review reveals diverse institutional practices at the boundary between VET and HE and inconsistency in and confusion about implementation of the AQF credit policy (Ithaca Group, 2018). However, a significant number of arrangements were reported, both within sectors (e.g. in VET through the range of certificates I to III) and across sectors. The cross-sector arrangements, principally from diploma to bachelor degree qualifications, were most prevalent in the areas of management and commerce, education and health (2018, p. 44). The report detailed responses to a survey that included questions about institutions with which HE providers had formal articulation agreements. The chart below highlights that most agreements are with TAFE/s (over 80%), although over 60% reported agreements with private RTOs.

Figure 1 Parties to articulation agreements



(Source: Ithaca Group (2018, p. 44), based on a Provider Survey.)

The amount of pathway activity described in the report points to traction of policy work to facilitate student movement across sectors, particularly in some industry areas.

It should be noted that reform work in recent years acknowledges some weakness in the current AQF (2013) model, raising questions about its efficacy as a cross-sectoral framework for informing efforts at integration. The AQF Review (Noonan et al., 2019) explained that although the AQF 'sets the overall framework for the design and quality assurance of education and training in Australia',

Factors such as funding, governance, regulation and institutional responsiveness have far greater influence on education and training than the AQF. Qualifications also sit within broader economic, social and cultural contexts, which can strongly influence perceptions about their standing and expectations about what they should provide. (2019, p. 8)

Nevertheless, Noonan et al. argued in their case for reform that 'the relevance, effectiveness and utility of the AQF is arguably more important today than when it was first implemented as a loose, largely sector based framework in 1995' (2019, p. 8). The value of an effective AQF is in providing a 'common language for the design and description of the types of Australian qualifications and the relationships between them' (2019, p. 8), suggesting that a reformed AQF has scope to facilitate greater integration

between the VET and HE sectors, potentially leading to a range of benefits for students, occupations and industries when their development and skills needs straddle the current tertiary binary.

This sketch of the formation of the two sectors of Australia's tertiary system is in one sense a story of government efforts to construct systems that subsume diverse types of provision. These two stories raise the question whether some natural limit to synthesis has been reached, at least for now, and that further integration between the contemporary VET and HE sectors can only be effected through encouragement of relationships among individual institutions. The next section of this review indicates that this approach is indeed the character of policy work and initiatives. Facilitating this work is conceptualisation of the problems of the binary and proposal of solutions that largely play out in modest, sometimes short-lived innovations resulting from relationships of VET and HE institutions (either between individual institutions, or internally for institutions that offer qualifications in both sectors).

Australia's binary tertiary field: problems and solutions

Difficulties implicit in a sharply divided binary tertiary field were acknowledged as early as the Finn review in 1991 (Australian Education Council, 1991), which coined the term 'pathways' to describe a desirable situation in which students could traverse the sectors as necessary to develop their careers. The Australian National Training Authority (ANTA) took an active interest in promoting pathways between VET and HE. Their 1998-2003 National Strategy document, *A bridge to the future* (ANTA, 1998) argued for 'seamless post-compulsory pathways' on the basis of: competition between providers that nevertheless preserves the 'unique and distinct missions of vocational education and training and universities' (ANTA 1998, p. 13); a mixture of public and private provision; consistent implementation of the AQF by providers; quality career advice; data available on providers to assist decision making; and, information in training packages about links between VET and university qualifications. In ANTA's next national strategy (ANTA, 2003), there was a renewed call for developing seamless pathways, and the concession that 'Pathways between education and training sectors have improved but barriers still exist, particularly between vocational education and training and universities' (ANTA, 2003, p. 11).

In 2005, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) engaged consultants PhillipsKPA to investigate the question of improving credit transfer and articulation from VET to HE. This question viewed credit transfer (used interchangeably with 'articulation' in the report) as the key challenge of pathways. The investigation involved case studies of credit transfer and led to the identification of a number of 'enablers' and 'impediments' that exist in and between institutions in relation to credit transfer. PhillipsKPA defined credit transfer as 'granting students some level of exemption, status or advanced standing...in the course they are entering in recognition of relevant prior studies and/or work experience and/or life experience' (2006, p. 32). They went on to differentiate block credit (for a component or stage of a course), specified credit (for nominated units of study) and unspecified credit (credit gained that can be applied to different units for different students). In terms of credit transfer arrangements, the report distinguished individual or unstructured arrangements (where individual students negotiate credit) and structured arrangements (where participating institutions agree on amounts of credit from a VET into a HE qualification). Of particular interest to the present research was an extension of the analysis of types of arrangements to 'integrated cross-sector award arrangements' that involve,

designing new or modifying existing qualifications to create an integrated or defined qualification pathway in which one qualification builds on or is linked directly to the other and in which credit is built into the related awards. Integrated award arrangements involve a collaborative curriculum development process between both the VET [VET] and higher education partners in the arrangement. (PhillipsKPA, 2006, p. 33)

The report document provides no concrete details of the case studies that yielded this typology of credit transfer arrangements, but indications were given about the nature of integrated award arrangements, including that they may be in 'niche' areas only (e.g. 2006, p. 17) and that these arrangements could be vehicles for a strong industry focus' (2006, p. 30). Another feature of these arrangements is that while they provide students with simpler, standardised pathways, 'there is much more work required in terms of the design and negotiation of new curriculum and the administrative and academic processes of course approval in both institutions prior to implementation of these pathways' (2006, p. 34).

Student experiences of initiatives to promote post-compulsory pathways were researched by Harris et al. (2006). According to Harris et al.,

A range of initiatives has been undertaken to facilitate learning pathways within and between the education sectors and employment. These have included articulation, credit transfer and recognition of prior learning arrangements; appointment of specialist staff, such as skills advisors and pathways officers; and the provision of enabling or bridging courses for those lacking knowledge and skills. Inter-institutional arrangements such as joint courses, learning opportunities on shared campuses or in dual-sector institutions, have been established. (2006, p. 20)

In terms of students' experiences, Harris et al. found 'a diversity of pathways which cannot be called linear or traditional' (2006, p. 40), prompting the researchers to title their report, 'Crazy paving or stepping stones?' Despite the diversity reported by participants, the researchers offered a student movement typology, with categories of 'interest chasers' (shifting interests determine movement), 'career developers' (coherent planning), 'career mergers' (from initial exploration to focused development), 'forced learners' (external demands lead to changes) and 'two-trackers' (planning for an alternative career). In terms of the pathway arrangements described by students, Harris et al. concluded that,

while not necessarily seamless, sectoral transitions and pathways appear functional and effective and are utilised by many young people. From the stories of these participants, it seems that the process could be enhanced by targeted, accessible and accurate information and by the provision of more career advice. (Harris et al., 2006, p. 40)

They added that, 'Notwithstanding systemic factors, however, the nature and personality of the individual is critical in relation to whether these opportunities are taken up and utilised' (2006, p. 40), an observation that points to the value of taking student perspectives into account when considering pathway design.

Policy-makers maintained an interest in promoting relationships between the VET and HE sectors. Terms of reference for Bradley's review of HE, signed by Julia Gillard, then Deputy Prime Minister and Minister for Education, Employment, Workplace Relations and Social Inclusion, included seven key objectives, including the following:

A broad tertiary education and training sector. Establishing the place of higher education in the broader tertiary education sector, especially in building an integrated relationship with vocational education and training. (Bradley et al. 2008, p. 206)

Noteworthy in this objective is reference to a 'broader tertiary education sector'. This concept goes beyond the assumptions of the ANTA strategy documents which still worked within the horizon of discrete sectors. Responding to the key objective, the Bradley Review (2008) set out six principal characteristics of a fully effective tertiary system:

- equal value given to both VET and HE, reflecting the importance of their different roles in the development of skills and knowledge and their contributions to our economy and society;

- the recognition that institutions may have a primary mission in one sector, but should still be able to offer qualifications in the other sector as under current arrangements;
- a shared and coordinated information base and approach to anticipating future labour market needs, industry needs and demographic trends;
- a capacity for the whole system to provide integrated responses to workforce needs for industries and enterprises, including those in specific localities and communities like outer metropolitan and regional areas where there is significant population growth, low levels of educational attainment and participation and uneven provision;
- an efficient regulatory and accountability framework; and
- clearer and stronger pathways between the sectors in both directions. (2008, p. 179)

It is noteworthy that the first of these characteristics is distinctive sectors of VET and HE which are equally valued. The binary structure of the tertiary sector is to be retained in this vision, but the other characteristics serve to mitigate problems deriving from the binary. The last characteristic reflects the familiar strategy of pathways introduced by the Finn report (1991), promoted in ANTA's national strategies (ANTA 1998, 2003) and explored through the experiences of students by Harris et al. (2006). This strategy is considered again below in the context of other initiatives and reports. The remaining characteristics itemised by Bradley et al. (2008) hinted at some other possibilities. The point that institutions 'may have a primary mission in one sector, but should still be able to offer qualifications in the other sector as under current arrangements' indicated potentially coherent institutional arrangements that could greatly facilitate student movement between the sectors. The next two characteristics envisaged the sectors responding in a coordinated way to local and national economic and social needs. Such responses would not necessarily involve facilitation of student movement between the sectors. Detailing the characteristic of 'an efficient regulatory and accountability framework', the review explained that,

A more flexible tertiary education and training system is needed to streamline regulatory processes as much as possible and recognise that while institutions will have a primary mission in one sector, they should still be able to offer some qualifications in the other sector to meet needs effectively. (2008, p. 182)

This comment points to a situation that is still very much with us. While most state- and territory-based differences in regulation have been removed since the Bradley review, institutions working across sectors are still confronted with quite intricate regulatory obligations.

A concerted effort to develop institution-level mechanisms to create student pathways was initiated by the NSW Government in 2010. The NSW Tertiary Pathways Project,

aims to go beyond traditional credit transfer arrangements to develop seamless progression through VET and higher education qualifications, with entry and exit points as needed. The project has involved collaboration at all levels - across the education and training sector, with industry and between two large government departments. It has delivered four unique pathways that are already enrolling students, with another four under development. (2018, p. 3)

Over the eight years of the project reported in 2018, four 'pilot' programs were funded on a competitive basis. The pilots were in the areas of electrical engineering (with the University of Newcastle working with industry and RTO partners to offer a combined apprenticeship and degree in electrical engineering), early childhood education (with TAFE NSW developing an Associate Degree in Early Childhood Education which allowed students to move directly from a Certificate II in Early Childhood to Diploma of Children's Services into the degree), construction management (led by the Master Builders Association [MBA], this

'higher apprenticeship' allowed students to move from their building trade qualification into a Diploma of Project Management and into a Bachelor degree in Construction Management offered by one of four universities) and aged care (with the University of Newcastle creating an Associate Degree of Integrated Care in Ageing that students moved into who held certificate III and IV aged care worker qualifications).

Underlying these pilots were three pathway models. The first is the Higher Apprenticeships and Traineeships model that 'extends traditional apprenticeships of traineeships to higher level qualifications up to a university degree' (2018, p. 6). The Masters Builders Association of NSW pilot (2018, p. 14) is an example of this kind of model. The second is a Degree Apprenticeships and Traineeships model which 'embeds a VET qualification and an apprenticeship within a bachelor degree' (2018, p. 6). The University of Newcastle electrical engineering pathway follows this model (2018, p. 14). Finally, there is an Integrated Tertiary Pathways model that 'creates a seamless transition for students by co-designing new qualifications that integrate HE and VET content for the first time' (2018, p. 7). The Associate Degree of Integrated Care in Ageing corresponds to this model (2018, p. 14).

The report (NSW 2018) draws seven lessons from the project, including (1) regulatory and funding challenges (of the kind that has already been cited in other reports) and which explained 'can be minimised through a student-centred design approach, careful planning and engagement with key stakeholders' (2018, p. 8), (2) the importance of strong involvement from industry partners (with such involvement stimulated when tertiary pathways 'meet particular needs in evolving industries where skill sets are rapidly changing and in industries where educational gaps are preventing the workforce from upskilling' 2018, p. 8), (3) the value of student-centred pathway design (as mentioned), (4) the need to support students to transition between VET and HE due to the fact that,

Higher education and VET are based on different pedagogies which can affect successful transition. While VET assessment is based on competencies and technical skills, higher education focuses on capability-based assessment and critical thinking. This can be a challenge for students moving into higher education, as can the higher workload and the adjustment to self-directed learning. (2018, p. 10)

The importance of work integrated learning (5) was another lesson from the project, especially in relation to the HE components of the pathways, (6) meaningful entry and exit points that allow students to leave the pathway early with a recognised qualification, and (7) strong project management and governance arrangements that reflect the range of stakeholders involved in the pilots.

The NSW Tertiary Pathways Project serves to summarise problems of a sharply divided tertiary sector while spelling out institutional practices that may lead to the establishment of stable pathways. The three models, in particular, present a conceptualisation of solutions that allow for testing and further development of arrangements. In addition, the list of pilot projects offered a resource for the present research, specifically, an opportunity to revisit arrangements for the purpose of data collection.

In related work, the NSW Government commissioned a review of VET in that state that made recommendations including establishing a new 'tertiary institution' (NSW Institute of Applied Technology) that would address challenges associated with the post-school binary (Gonski & Shergold, 2021). In its case for establishing a new kind of institution, the review referred to the 'increasingly outdated distinction between higher and vocational education', arguing that,

Most jobs need a mix of practical and theoretical skills. The structural bifurcation between two different types of tertiary study - higher and vocational education - often hinders people in gaining the range of employability capabilities that they need for success. (2021, p. 6)

The proposed institute would be ‘built around the career aspirations of students and the skill needs of employers’ (2021, p. 11). Noteworthy in this proposal is placing student and industry interests at the centre of institutional activity rather than attempting to forge links between offerings of the different sectors.

A different solution to the binary challenge was conceptualised by Wheelahan, Buchanan and Yu (2015). In their ‘vocational streams’ model, the emphasis was on occupations as the guiding principle for determining what education and training options are relevant. The vocational focus is complemented with ‘capabilities’ centred in individuals. The capabilities approach goes beyond competencies by embracing individual agency and empowerment as much as technical and employability skills. If the focus shifts like this to vocational streams and individual capabilities, the tertiary binary problem is less of a sticking point. Rather, it becomes a greater or lesser inconvenience when vocational streams and capabilities are best supported by a combination of offerings from each sector. This occupation- and person-centred approach to tertiary provision may be the way of the future, and resonates to some extent with Gonski and Shergold’s (2020) proposal with the difference that Wheelahan and colleagues’ model took occupations rather than industry and employers as the complement to a student focus. It would require considerable change to the way the system works in Australia to adopt the vocational streams and capabilities approach, and as such goes beyond the scope of the present research. However, some findings of this project suggest that where industry, employers and students recognise and value of combining VET and HE qualifications, the tertiary binary is indeed reduced to the level of inconvenience rather than functioning as a barrier. A glimpse of what a ‘fully effective tertiary system’ can offer may be seen.

This section has surveyed key policies, research and initiatives to develop a sense of the way Australia’s tertiary binary has been problematised and the range of solutions offered. In all these cases, the binary is accepted as an insurmountable feature of the tertiary field, with some acknowledgement of the value of distinct types of provision for students, the economy and society. In terms of solutions, tight integration of VET and HE provision through some form of integrated qualification package emerges as the ideal for ease of student movement. Although the difficulties associated with integrated models for individual institutions is well-recognised, the problems can be mitigated to some extent by closer involvement of governments and industry stakeholders. In the next section, major challenges faced by institutions looking at or engaged in integrated qualifications are canvassed.

Challenges of integration

With qualification integration identified as a way to overcome at least some problems of Australia’s binary tertiary education field, a distinct set of challenges arises. Other solutions, such as clearly defined pathways between VET and HE qualifications, face particular difficulties but do not need to confront others. For instance, curriculum, pedagogy and assessment differences between sectors need not be addressed in depth when the focus is on pathways, but for integration to occur, these differences become salient and demand some sort of response. The three major differences just mentioned are treated in this part of the review, along with issues stemming from sectoral differences between teacher qualifications, regulation, funding and markets. Implications are drawn that can inform data gathering and analysis later.

Curriculum

One of the most powerful and intricate characteristics of the post-school binary in Australian education and training is the way learning is supported and measured in each of the VET and HE contexts. Many of the factors considered - purposes, histories, federalism, the AQF - have fostered these differences. In

terms of the current situation, curricular differences are evident in the deep tension between a competency-based approach on the one hand, and discipline- and profession-based approaches on the other. On the side of VET, the Australian training reform agenda that took shape at the end of the 1980s had among its many consequences that of radically reshaping curriculum in the sector. A fundamental aspect of this reshaping was the decision to adopt a sector-wide model for determining and representing that which education and training programs should seek to achieve. In other sectors and countries, and in research communities, such a learning goals-setting endeavour is studied under the heading of 'curriculum', although in the Australian VET context a pejorative and secondary 'resource' sense of the term curriculum prevails. We may then consider tensions between approaches to curriculum across the binary, and as mentioned, on the VET side a sector-wide model was adopted (Wheelahan, 2010). What is noteworthy in this decision is that multiple and diverse fields of skill and knowledge are brought under a single model of representation. All occupations incorporated into the VET system are represented for learning by a number of units of competency, all of which are structured in terms of categories that include descriptors, elements, performance criteria, and other forms of information. These units can be individually valuable, or can be combined in smaller groups ('skill sets') or the larger groupings of qualifications (DET, 2020). In terms of the focus of this curriculum model, knowledge and skills in application - or 'competency' - is emphasised. The boundaries of units are constituted by the discrete workplace task or role and competency related to that task or role. Particular knowledge and skills enabling that task or role to be performed are reflected in the elements and performance criteria within units of competency, but are not emphasised. A complementary document outlining acceptable assessment evidence against each unit of competency does specify knowledge and performance (skill) components taken to underpin task or role competency.

In contrast, HE curriculum is not required to conform to an overarching model (O'Leary, 2017). Rather, learning for professions and disciplines is organised at a domain and often individual institution level (Bosco & Ferns, 2014). In terms of HE professional education and training, professional associations frequently mandate standards for the professional field and for registration to practice. In these cases, professional standards help to shape curriculum, but representation of those standards is unique to the profession. For example, standards for engineers, nurses and teachers are all structured differently with categories of information that reflect the needs of those areas and traditional ways of thinking about knowledge and skills. Disciplines also structure curriculum in ways that answer the structure and priorities of individual disciplines. For instance, curriculum for history is structured differently to curriculum in biology. It is not only that they contain very different content, but the way content is differentiated into layers, segmented and arranged is different reflecting the nature of the discipline, and traditions in ways of thinking about skills and knowledge (Blackmore & Kandiko, 2012). Overlaying the diversity of profession- and discipline-specific models of curriculum, individual institutions determine their own version of these models. There is comparability of curriculum across institutions because teachers have strong professional or disciplinary backgrounds and identity. Knowledge generally has a significant place in HE curriculum, although professional areas include substantial skill components supported by professional work placements and work-integrated learning. As such, bodies of knowledge - for example, mathematical knowledge - become central to the formation of curriculum in HE.

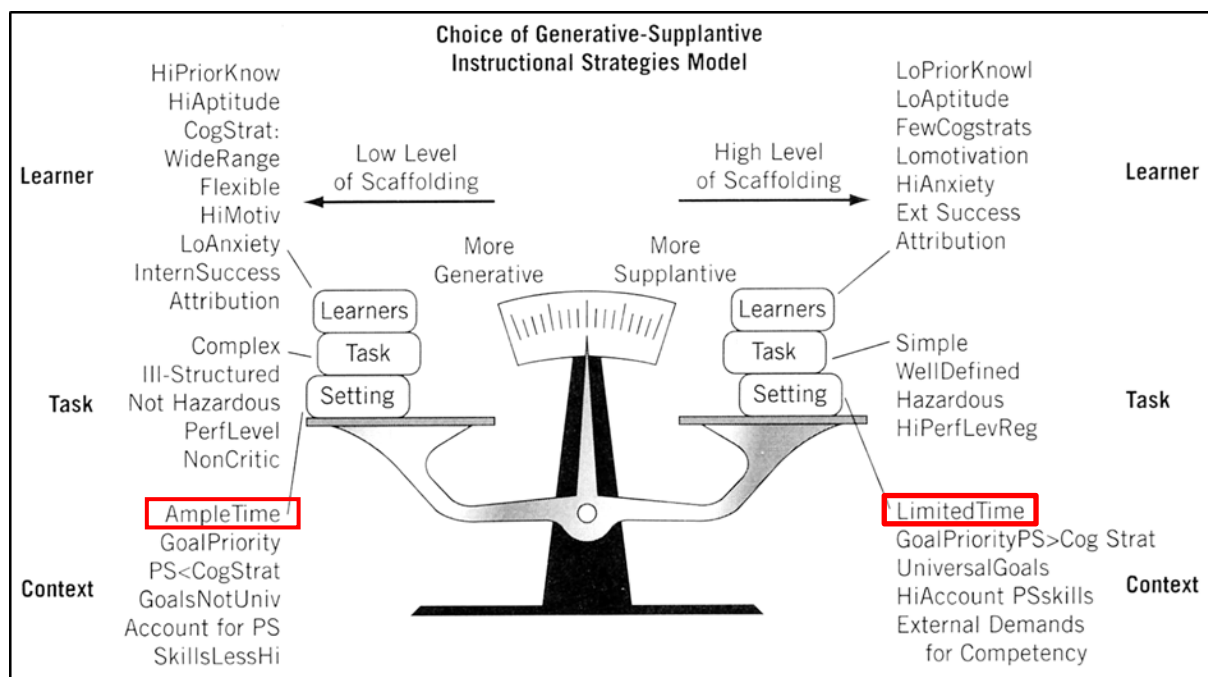
The curriculum differences between VET and HE, then, are significant and manifold. In this regard, integrated qualification design would need to contend with challenges of curriculum coherence. The way parts of a VET curriculum interact and parts of a HE curriculum interact would not transfer to the way parts of an integrated qualification would have to interact. New thinking and curriculum innovation would be required to develop a qualification that meaningfully inter-related competency-based and knowledge-based components.

Pedagogy

Pedagogical or instructional differences play out between VET and HE. The key factor in this regard is time allowed for learning. One of the claimed advantages of competency-based training is that it is an outcomes-based rather than ‘time-served’ model. The advantage is that learners who are either well-prepared or have mastered content early are not forced to sit through arbitrary periods of time. By the same token, a student who needs more time and support to master content is allowed that time, rather than being cut-off by the approach of a terminus-like end of term or semester. Although early trials of the competency-based model in Australian VET (e.g. Harris et al., 1987) fully (and successfully) implemented this student-centred ‘mastery’ approach, over time commercial and competitive pressures have seen providers leaning towards short-form delivery approaches. There has not been research that investigates how this approach affects quality of learning, and the success of students. Meanwhile, HE has retained the ‘time-served’ approach, noting that simply serving time is in fact not sufficient to ensure graduation from these programs (Bennett et al., 2020).

These different approaches to the time of learning have significant implications for pedagogy. A more expansive amount of time promotes more learner-centred pedagogies such as problem-based, inquiry-based and project-based learning, pedagogies that foster higher order thinking and sophisticated teamwork skills. Longer-form delivery also allows for more intricate and nuanced knowledge and skills to be mastered. So-called ‘threshold concepts’ - known sticking points for students learning complex bodies of knowledge - can only be accommodated through transformation of knowledge structures within the learner, a process that simply takes time. In contrast, time constraints on delivery promote more didactic and directive pedagogies. Presentations of content, demonstrations of techniques, and limited time for practise, quickly followed by assessment of performance represent a pattern typical of short-form delivery. Instructional design researchers who have investigated differences between ‘generative’ (learner-centred) and ‘supplative’ (instructor-centred) learning strategies place time-constrained approaches on the side of supplative strategies (Smith and Ragan, 2005). Figure 2, prepared by Smith and Ragan (2005), displays key differences, with the relevant time-frame highlighted:

Figure 2 Choosing between generative and supplative instructional strategies



(Source: Smith & Ragan, 2004, p. 143; red emphasis added)

As this figure suggests, depending on whether time is expansive or 'ample' or 'limited', certain features of learners, types of task outcomes and contexts are favoured. There may be a broad match between learner features, task outcomes and contexts (as indicated by the diagram) within short-form competency-based delivery, but if a high-skill, 'knowledge economy' is sought, with workers capable of problem-solving, adaptability and innovation, then supplantive learning strategies are not ideal for reaching these ends. The diagram helps to account for the relative success that longer-form learning strategies such as those found in HE have for engendering greater levels of problem-solving, adaptability and innovation, alongside mastery of complex bodies of knowledge (Smith & Ragan, 2005).

In terms of integrated qualifications, then, the framing of learning across time becomes a complex problem in its own right. Pedagogies suited to learning tasks that are simpler, more well-defined, potentially more hazardous, and whose performance is more highly regulated - assuming that VET is characterised by a reasonable match between task-type and learning strategy timeframe - must somehow blend with pedagogies marked by longer periods of learning and presumably suited to learning tasks that are more complex, ill-structured, potentially less hazardous, and whose performance level is more discretionary and less critical and regulated. Innovative thinking would be required to design programs that successfully blend these different pedagogies so that different tasks can be mastered as outcomes from the one program. In particular, the decision about time allowed for learning - whether short-form or longer-form - would be a fundamentally important consideration in program design.

Assessment

Assessment approaches and practices differ between VET and HE. In VET, the competency-based approach has tended to be implemented with a binary competent/not-yet-competent assessment schema, an approach originally advocated by minimum competency testing researchers for school education in the US in the 1970s (Hodge, 2007). This schema is coupled with a criterion-referenced mode of assessment. This approach to assessment seeks measures of learning in criterial performances of the task or role being learned. That is, for a given unit of competency, competent performance in an actual workplace is supposed to supply the standards of performance, listed as performance criteria. In Australia, the performance criteria distinguished and recorded in units of competency become assessment criteria, in effect centralising direction of assessments throughout the system. The mastery principle that originally informed the design of competency-based learning programs extends to assessment practice. Thus, in most cases, a student who receives an assessment of 'not-yet-competent' will be given another chance, in some cases several, to demonstrate competency. Comparison among students is not the goal of this mode of assessment, but rather to signal to employers and others that the student is now deemed capable of performing the task or role described in the unit of competency.

In Australian HE, assessment practice is commonly a combination of norm-referenced and criterion-referenced modalities (Bacchus et al., 2019). Criteria for assessment in a single course are often drawn from statements of outcomes for the course. Those outcomes are in turn referenced to professional or disciplinary bodies of knowledge. But individual course outcomes tend to determine assessment, rather than centralised criteria-fixing as happens in VET. The implementation of criterion-referenced assessment within HE mostly employs a graded schema and rubric aligned to each criterion, which may be expressed as a percentage with bands or intervals signalling major categories of performance, for example, between 'pass' (e.g. 50% - 64.9%) and a higher performance level of 'credit' (e.g. 65% - 74.9%). Discriminating among levels of performance against a criterion is accomplished through qualitative and quantitative descriptors that unfold possibilities implicit in criteria, although empirical observation of performances over time can become a source of elaboration of descriptors (Colvin et al., 2016). A normative element is present in HE assessment practice, as institutions either adjust cut-off points for

major categories of performance to approximate to a normal curve (e.g. a 'credit' may be awarded to students whose assessment results fall between 67% and 76.9%), or descriptor content is modified to more clearly discriminate among categories of performance.

Assessment of units or courses within integrated qualifications thus needs to grapple with distinctive theoretical and practical assumptions between VET and HE assessment. Existing areas of rapprochement are experiments in, and in some cases practices of, 'graded assessment' in VET institutions. There is debate in the VET sector as to whether graded assessment is consistent with the principles of competency-based training, although the originators of criterion-referenced assessment explained that empirically (i.e. through observation of student performance over time) it would be possible to differentiate levels of performance against criteria (Glaser, 1963), an approach that, as mentioned, has found its way into HE assessment practice. Apart from debate about the theoretical purity of graded competency-based assessment, issues in VET debate are the extent to which the binary competent/not-yet-competent is motivating for students or useful for employers. A second area of rapprochement is use of criterion-referenced assessment in HE. The sector has moved away from a predominantly norm-referenced model, which signifies greater sensitivity to the challenges of sourcing, defining, weighting and benchmarking criteria, all issues with which the VET sector actively engages.

Teacher qualifications

In VET and HE, different rules and practices apply to initial and continuing eligibility to teach and assess. Rules are prominent in VET sector teacher selection and maintenance of eligibility. The sector regulator, ASQA, mandates minimum qualification and experience levels for entry into a teaching role and types of periodic activities required to sustain current knowledge. Assessment in VET has its own rules that extend to minimum qualifications, experience, and currency-maintenance for assessors. Indeed, it is possible and, in some cases normal practice for the assessor's role to be distinct from the trainer role, and sector regulation supports that differentiation of roles. On the whole, teachers in VET need to possess certain qualifications, demonstrate the 'currency' of their expertise and be engaged in professional development. In terms of qualifications, there is a standard qualification called the Certificate IV in Training and Assessment that is updated regularly. The latest version will give teachers the key qualification for practice in the sector. However, this must be complemented with recognised skills in the type of work the training addresses. A VET sector qualification at least to the level being taught and assessed will satisfy this second credential requirement. Currency has two elements - currency in the type of work being taught, and currency in terms of pedagogical and VET system knowledge. Both of these can be demonstrated through engagement in regular professional development activities such as industry experience (vocational skills) and workshops to refresh and develop skills in, for example, working with disabled students. The regulator, ASQA, publishes a 'Fact Sheet' that makes all these requirements explicit (ASQA, 2019).

Teaching in HE presents quite a different picture. The sector regulator, TEQSA, does not mandate teacher (or assessor) minimum experience or qualification levels. Rather, regulation of teacher/assessor prerequisites must be referred back to a patchwork of discipline- and profession-based practices and rules, shaped by individual-institution policy, although sector-wide policies and programs exist in relation to teaching. A somewhat idealised picture of HE teaching, say in an undergraduate chemistry program, is that a teacher or lecturer has a research degree at masters or doctoral level (AQF 9 or 10) and is required by the institution to be actively researching and publishing in the discipline (continually contributing to new knowledge). A HE teacher, then, is supposed to be steeped in and actively participating in the scholarship of the discipline. Teacher assistant or tutor roles undertake most of the supervision of learning activities, and people in these roles are often research students - those conducting research

projects within AQF level 9 or 10 degrees, but not yet graduated. What is noteworthy in this sketch of the ideal model of HE teaching is that pedagogical or teaching knowledge is not generally a prerequisite of the employment nor for ongoing eligibility. In practice, the pervasive use of standardised student evaluation mechanisms in Australian HE providers, and the sensitivity of institutions to the aggregated outcomes of these evaluations, means that in practice, indifferent teaching is an issue and institutional policies are usually quite specific in relation to identifying and rectifying practices in courses that are negatively evaluated by students. However, in terms of the subject being taught, HE teachers are required by the regulator to hold the next AQF qualification higher than the one they teach (TEQSA, HESF Domain 3, 2015).

The traditional disconnect in HE between disciplinary or professional expertise on the one hand, and pedagogical competence on the other, in HE (a situation that has a long history and is not confined to Australian HE) is something that attracted the attention of policy makers in different countries toward the end of the last century. Research ensued that has resulted in a new field of scholarship (e.g. Biggs, 2011, Ramsden, 2003) with new policies and qualifications emerging in tandem. In Australia, the latter included a (now-discontinued) Australian Government Office for Learning and Teaching that promoted quality improvement and innovation in HE through grants and awards, and what in many institutions is a Graduate Certificate (AQF 8) level qualification targeting new and existing HE teachers, although the qualification is not mandatory in many institutions.

Consideration of teacher qualifications for an integrated qualification suggests a complicated picture. Compliance with relevant rules and engagement in related practices appears to demand a divided workforce, or individuals with unusual combinations of qualifications and experience. The situation raises questions about whether a coherent teaching workforce to deliver integrated qualifications is possible, and if not, what are the implications of a divided workforce delivering an integrated credential.

Regulation

Discussion of differences between teacher qualifications in VET and HE draws attention to the significance of regulatory differences between the sectors. Regulation in VET embraces a wide range of factors of which teacher eligibility is only one. The VET regulator, ASQA, regulates in three main areas: training providers, English-language courses, and accredited VET courses, with the first area being of particular concern for this research. Regulation of VET providers is undertaken in accordance with the eight legislated *Standards for Registered Training Organisations* (RTOs) revised version (2015). The first three standards apply to training and assessment activity. The first of them is that ‘The RTO’s training and assessment strategies and practices are responsive to industry and learner needs and meet the requirements of training packages and VET accredited courses’ (Federal Register of Legislation, 2020). Under this standard the orientation of proven curriculum is firmly delineated. Providers must reference either training packages or document accredited courses when they design their programs. As indicated in the discussion above about curriculum, the orientation dictated under Standard 1 strongly informs design of learning activities and simultaneously determines assessment design. The second standard, requires that ‘the operations of the RTO are quality assured’. As the contextual discussion of that standard clarifies, ‘The RTO is ultimately responsible for ensuring quality training and assessment within their organisation and scope of registration, regardless of any third-party arrangements where training and/or assessment is delivered on their behalf’ (Federal Register of Legislation, 2020). The second standard underlines the need for any VET component of an integrated qualification to be actively monitored and assured by an RTO. Assessment and credentialing is the focus of the third standard: ‘The RTO issues, maintains and accepts AQF certification documentation in accordance with these Standards

and provides access to learner records' (Federal Register of Legislation, 2020). The active monitoring by an RTO extends to assessment and certification of learning within a VET program. In the context of an integrated qualification, the VET component would need to be assessed and credentialled according to this standard.

The next three standards for RTOs concern obligations to learners and clients. Standard 4 states, 'Accurate and accessible information about an RTO, its services and performance is available to inform prospective and current learners and clients', and suggests that the relevant RTO's direct role in integrated qualifications, and its ranges of services and 'performance' must be signalled to students and other interested parties. The total information package for an integrated qualification would therefore need to comply with this standard. The next standard, 'Each learner is properly informed and protected' (Federal Register of Legislation, 2020), addresses the rights of students and responsibilities of the provider, and these are to be made explicit to them. Complaints and appeals (for instance, against an assessment decision) are treated in Standard 6, and providers are required to have in place a transparent process for responding to them. Standard 7 ('The RTO has effective governance and administration arrangements in place') and 8 ('The RTO cooperates with the VET Regulator and is legally compliant at all times') concern provider governance and administration, and aim to ensure providers are viable, sustainable businesses (for a whole range of reasons including continuity of student service), and meet a range of legal obligations including to the regulator and for reporting to government agencies (including data on student outcomes following a standardised format). Again, the VET component within an integrated qualification would need to be compliant with these standards, with sector-specific obligations (e.g. reporting) prominent among the specific compliance measures.

On the HE side, quite different standards apply. The regulator, TEQSA, is guided by the *Higher Education Standards Framework (Threshold Standards) 2015*, or 'HES Framework', articulated into seven 'domains'. The first of these addresses 'Student participation and attainment' and covers student experience or 'student life cycle'. Admission to courses, principles relating to credit for prior learning, student orientation, scope for courses to accommodate students with diverse needs, specification and assessment of course outcomes, and issuing qualifications are all part of this domain. While some of these activities could unproblematically be integrated with corresponding VET activities, credit for prior learning deserves particular attention. Specifically, this part of the domain is defined in terms of 'assurance that any credit granted for prior learning does not disadvantage the student concerned or compromise the integrity of the course of study' (Higher Education Standards Framework [Threshold Standards] 2015). For HE providers involved in integrated qualifications to be compliant with the first domain, they would need to address the question of course integrity for which credit for VET sector study is standard. The second standard or domain concerns the learning environment, and covers facilities and infrastructure, diversity and equity, wellbeing and safety, and student grievances and complaints. For HE providers involved in offering integrated qualifications, compliance with the components of Domain 2 should not be especially challenging, and indeed convergence between VET and HE practices may be possible with respect to these components. Domain 3 - 'Teaching' - has already been mentioned in relation to HE teaching qualifications, but another component of this domain, 'specific requirements for the specification of the course design and requirements for engagement with advanced knowledge and inquiry, current knowledge, theoretical frameworks and concepts, related scholarship and emerging ideas' raises some challenges for HE providers of integrated qualifications. These challenges have been taken up under Curriculum above.

Domain 4, 'Research and research training', raises a question for HE providers of integrated qualifications. To what extent are VET provider partners invited to participate in research activity of the HE provider? The emergence of a research agenda among public VET providers suggests that in relation to

this domain some convergence of provider interests may be possible with implications for practice. Domain 5, 'Institutional quality assurance' impacts providers of integrated qualifications in a few ways. Because self-accrediting status is the norm for HE providers, the regulator takes an interest in the internal governance and approval processes that result in new courses. Some innovation of these processes would be required for any new programs that form part of an integrated package that would come with some institutional risk. The other main impact of Domain 5 would be on the relationships between institutions that may be necessary to create integrated qualifications. Delivery with other parties is a focus of the domain, with the regulator pointing out that,

Where a provider delivers courses of study or parts of courses of study through arrangements with other parties, TEQSA will need to be satisfied that the provider remains accountable for such arrangements, that the delivery of the program is monitored and quality assured by the provider and that both the program delivery and the student experience with other parties comply with the requirements of the HES Framework. How this is demonstrated may vary with particular circumstances and should be discussed with the provider's case manager. However, the starting point will be the terms and conditions of the contract between the registered provider and the third party, and how the registered provider reviews compliance with these. (TEQSA, 2015)

Domain 6, 'Governance and accountability' concerns corporate and academic accountability. Internal processes identified above fall under this domain, suggesting no additional concerns posed by integrated qualifications in this context. Finally, Domain 7, 'Representation, information and information management' considers matters of marketing and data reporting. In this domain it would appear that integrated qualifications pose no special problems. Potentially, additional care would need to be taken with the marketing of integrated qualifications, while gathering of data on student enrolment and experiences may be complicated. The reporting of data to government agencies differs between sectors. Compliance with Domain 7 and RTO Standard 8 alike makes substantial demands on providers to gather, store and report data in different templates and to different bodies. The reporting burden on any provider involved in integrated qualification delivery would potentially be considerable.

Conclusion

This section has canvassed major challenges posed by integrated qualifications at a provider institutional level. Some of these challenges were cited in reports considered in the previous section (PhillipsKPA 2006, NSW Government 2018). In interviews with institutional staff involved in integrated qualification design and delivery, specific questions are posed in relation to curriculum, pedagogy, assessment, teacher qualifications, and regulation. In addition to the challenges described in this section, funding and market positioning are worthy of consideration. In relation to funding, anecdotal evidence is abundant that per unit funding is significantly higher for HE provision than VET, although it is difficult to find reliable figures to quote. The funding picture is muddled by the fact that HE research costs are borne in many cases by student income, making it difficult to determine exactly the level of institutional expenditure on course design, delivery and assessment. Nevertheless, funding-related challenges are raised in interviews with participants in the current project. Market positioning concerns the nature and targeting of marketing of integrated qualifications. The issue here is that VET and HE largely operate as two markets (as well as two sectors), and therefore it is worth investigating how integrated qualifications are marketed. Does it target traditional VET or HE markets, or is market segmentation approached in a novel way for these qualifications? Questioning along this line may be useful for comprehending the context of integrated qualifications.

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