Creating place: Design education as vocational education and training

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About the research

NCVER

Creating place: Design education as vocational education and training by
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Design education leads to an extensive range of jobs in architecture, interior design, furniture design and textiles at both professional and paraprofessional levels. Vocational educational and training (VET) offers a considerable number of courses in the paraprofessional level of design, mostly at the certificate IV and diploma levels.

Damon Cartledge and Mark Watson's project set out to focus on two issues of design education within the VET sector. The first was how design education can encourage creativity and innovation within national training packages; the second was to determine how design principles, which are embodied within design education, can be applied to management training.

The methodology comprised a national online survey and a number of focus groups. In total, over 200 stakeholders in design education shared their perceptions with the researchers. Research by its very nature is full of uncertainties and will challenge hypotheses. In this case, the research questions were framed on the assumption that training packages had become an accepted part of design education in the VET sector. It became apparent, however, that training packages had remained an ongoing challenge with those surveyed, who were not therefore in a position to respond to the original research questions posed by the authors. The two issues of innovation and design in management training remain areas for future research.

Nevertheless, the research was not in vain. What emerges is that design education practitioners feel very strongly about the way design is taught. The view of the practitioners is that design education sits uncomfortably within a competency-based training framework, and that the time-honoured pedagogies of problem-based and studio-based approaches offer a better way to instil innovation and creativity.

This finding provides a challenge to those with the responsibility for developing training packages that incorporate design. Can training packages accommodate the aspirations of the design education practitioners? Or is it time to rethink the teaching and learning approach in this area?

Tom Karmel
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Executive summary

There is an air of mystique attached to being a 'designer', one that can occasionally distort our view of design as a world of work. Nowhere is this more apparent than at the paraprofessional level, where 'design' courses offered through the vocational education and training (VET) sector confront the tensions between the personas of the 'artisan as craftsperson' and the creative designer. This level of VET is most certainly vocational preparation, but it also represents the threshold for recognition as a design professional.

The Australian design sector represents a diverse collection of creative and innovative industries and broadly includes areas such as architecture, engineering, graphic design and digital media, industrial design, furniture, footwear, fashion and interior design. Recently the sector has included design management as a key discipline that seeks to utilise design principles and practices to improve business operations and present design as a strategic tool for use across industries and enterprises. Therefore, how new designers are prepared for new ways of thinking and working in the changing world of work is an important issue.

The professional ranks of the design sector have traditionally been filled by university-qualified practitioners such as architects, engineers and industrial designers. However, changes in the sector are driving a need for enhanced design skills from VET graduates, particularly at the certificate IV to advanced diploma levels of the Australian Qualifications Framework (AQF). Here we have traditionally seen a demarcation between professionals and other design workers which is based largely on the level of design qualification attained; historically, a university degree was seen as the basis for recognition as a professional designer. As levels of conceptual knowledge and problem-solving approaches are increasingly utilised at the paraprofessional level, this division is becoming blurred, thus posing a challenge to existing frameworks for teaching and learning in VET, particularly in the design and delivery of higher-level qualifications (certificate IV through to advanced diploma).

The central themes of this project emerged from participant views about the suitability of competency-based training and national training packages for the teaching of design. As these issues have been on the VET agenda since the early 1990s, we fully expected them to be somewhat redundant by 2007 and assumed we would be working from a stable base to launch an investigation into creative, innovative practice and associated teaching methods.

This proved not to be the case and meant that the research was diverted from one of its original questions, that of what the educational practices of the designer might offer management education, including, in particular, the capacity to cast a critical eye over problems and reinvigorate existing practices. However, as design educators told us, their 'critical eye' has been very often focused on massaging educational practices into uncomfortable shapes to fit (usually awkwardly) into regulated frameworks centred on assessment and record-keeping.

A generous interpretation might be that this activity in itself is 'innovative practice'; however, that was not the tenor of the data collected. Hence we took on new directions in the research, based on the evidence of resistance to move past the issues of how to better align existing practices to the requirements of a competency framework.

Through a national online survey and state-based focus groups this research presents the perceptions of over 200 hundred stakeholders in design education in the VET sector, primarily at

the certificate IV to advanced diploma levels. The focus groups were directed by issues emerging from the survey. The majority of participants were design educators working in the sector (predominantly in technical and further education [TAFE] institutes). Researcher field notes and forum reports were added to textual data for analysis.

There was a genuine interest in innovation by participants, with a parallel reluctant compliance to what was expressed as often restrictive teaching and learning practices. While some practitioners viewed this compliance as similar to working within the constraints of a project brief and therefore part of the design process, others suggested that a regulated system was inconsistent with professional, creative practice for designers. Working with competency-based training remained a dominant theme throughout. The general discussion, while not overwhelmingly negative, reflected more the concerns of the stakeholders about 'getting it right' in their diverse yet closely related fields of endeavour.

The notion of design practices articulating into management education need further investigation. However, it is well established in the data that the principles and processes of design practice are complementary to current and emerging management practice. This project was limited in that it did not discretely identify and engage a larger number of relevant management practitioners, as it did design educators. That said, the study remained well informed about management issues relevant to the identified paraprofessional contexts.

It is an interesting outcome of the research that we are left with a sense of 'going back to the future' to innovate. Our initial reaction was that practitioners were resistant to change. However, as the research progressed and became more widely informed, it became apparent that their desire to return to established pedagogies of design practice was driven by the understanding that these time-proven approaches are the fertile ground for innovation and creativity. In the end, the initial questions of the project became secondary to the very real issues identified by the participants. The research has consolidated a view that design education is deeply committed to problem-based and studio-based approaches to learning, but is operating awkwardly in a competency-based training framework.

Project context

Research purpose

The intention of this research into design education in the vocational education and training (VET) sector was twofold:

✧ to explore ways to assist design educators in the VET sector to encourage creativity by examining training and assessment practices consistent with the needs of industry, and as embodied in national training packages

✧ to identify innovative and creative approaches in design education conducted in the VET sector with potential implications for management training.

Research questions

From the conceptual framework established from the literature review the following questions were examined:

✧ What are the implications of competency-based training and assessment practices for design education and industry practice?

✧ How can innovation and creativity be best encouraged in VET programs for design education?

✧ Why is the method of assessment a critical component of design education?

✧ How is competency-based training and assessment currently applied in the preparation of design and management professionals?

✧ Can we transfer contemporary design protocols (for example, new product development) to innovation in leadership and management for industry?

Between policy and practice—dodging bullets

This project was initially framed by experiences in the Victorian VET environment and led to a broader investigation of the national context. Of primary importance was the need to consult as widely as possible with design educators and to present the voices of practitioners.

It is important to state that this project was conducted in a particular area of educational practice: VET programs at the certificate IV, diploma and advanced diploma levels of the Australian Qualifications Framework (AQF) and specifically in relation to design education programs. The additional element of management practice was included to enable an identification of ways in which design practice at the paraprofessional level could provide input into innovation in other professional areas. The area most immediately connected is the management of design as work and the way in which designers approach their work as a variation of usual business practice. An important issue for consideration here is that the project was seeking to reveal opportunities for *transfer* to new contexts, and not generalisations.

The opportunity to engage in focus groups of design educators was consistently praised by participants as a chance to critically discuss educational practice vis-a-vis design. Many teachers

focused on national training packages and competency-based training and these issues emerged as the uncomfortable topics that were not fully acknowledged and discussed at an institutional level. Research conducted through our national online survey was deliberately provocative in this area, promoting a view of competency-based training as a redundant issue for design education. Our aim was to use the survey as a springboard into discussion of pedagogies that best promote creativity and innovation. However, the passionate debate about competency-based training remained central to discussions, particularly issues of assessment and transfer of competence.

The most interesting elements of the data-collection phase of the project resided in the 'spaces' between policy and practice. The operational thinking surrounding competency-based training was frequently articulated by the practitioner 'voice' in the data. Many design educators were cautious about their established teaching practice being tracked against the requirements of national training packages. In most cases teachers indicated that they were able to satisfy the needs of students to be 'job ready' at the end of a course of study, but many challenged the reliability of the at-job-standard reporting of competency. In many cases attention to assessment practice was concerned with making existing studio/project-based strategies fit the reporting requirements of national training packages, rather than the packages informing the assessment choices.

Meyer's (1983) study of design education in technical and further education (TAFE) colleges, for what were then called 'non-professional' designers, identified many issues that we discussed with current VET design educators. This indicated that many of the issues underpinning debate on VET design education remain unresolved after more than two decades. Ongoing issues include levels of industry influence and its understanding of design skills, professional versus 'non-professional' design work, and developing appropriate pedagogies for creativity and innovation.

With TAFE institutes as the predominant VET provider in Australia, we approached the study with cognisance of the 2006 *TAFE futures* study and the continued disquiet attached to national training packages (Kell 2006). In the *TAFE futures* report, Kell cites a specific example from a ceramic design program where assessments for kiln operations for fine ceramics were drawn from building construction packages related to the manufacture of toilet pedestals. This surely brings into question the legitimacy of competency assessments made out of context. Similar examples of over-extension of the scope for transfer were discussed in the focus groups. These operational-level issues remain critical to understanding design education in the VET sector.

Another issue of context was the profile of design education, where there appears to be an imbalance between states and territories with relation to interest and support. Queensland and Victoria notably attract the praise of the Design Institute of Australia for their proactive position on connecting industry and the design sector. However, the ability of TAFE institutes to undertake this kind of activity is reported as problematic in the 2003 report *Developing Victoria's design capability*, as a result of staffing limitations, restricted resources and the diversity of their role (Department of Innovation, Industry and Regional Development 2003, p.34). The Western Australian and New South Wales–Australian Capital Territory focus groups were the only consultations held in VET design centres. Both of these centres are established as specialist TAFE colleges, indicative of a focused investment in design education.

Adding to the imbalance and confusion over whom and what constitute design education is the rhetoric associated with the desired direction, connections and stewardship of the design sector (Department of Innovation, Industry and Regional Development 2003; Design Institute of Australia 2007). That more than 60 government and non-government groups are currently listed by the Design Institute of Australia as being directly connected to the design sector is an indication of the range of interested parties. None of these groups appears as overtly connected to VET, yet several are exclusively connected to higher education. Arguably, this reinforces the notion of a confused 'space' for design education and design educators in the VET sector.

Therefore 'design' and the educational principles and practices that properly support its many forms remain contentious issues. There was much consultation and discussion during this project about

the need for clearly articulated approaches to design education, yet little agreement on the definition of 'design'.

To better understand where design education and educators fit in the VET sector we need to conceptually frame the project and position the findings within current professional discourse, beginning with the issue of defining *design.*

Defining design

Design is often seen as a contentious term and, according to Sparke (2004), notoriously difficult to define in contemporary practice. Sparke states that in reviewing her published work spanning the preceding two decades:

> I failed to provide any useful working definitions or defining frameworks for the two main concepts—design and culture—that I was at pains to document. This is still a daunting task as they are both difficult, complex concepts which have transformed themselves significantly over time and which have been defined by different people at different times in different ways.
>
> (Sparke 2004, p.4)

In this study we have investigated the VET dimensions of design education, as ways of knowing and not simply as ways of doing, which should therefore reveal design education as part of Sparke's (2004) dynamic process. This study is therefore underpinned by examination of the effectiveness of current policy and practice for VET programs in design education and their role in helping to achieve economic, social and environmental outcomes. In this project therefore the definition of design is not limited to product development per se (for example, furniture, buildings or consumer goods), since it includes aspects of problem-solving, systems development and sustainability.

This less tangible definition of design and design practice leads to strategies that will support new ways forward—innovative practices underwritten by purposeful VET programs. The breadth of the design sector also underlines the complexity of an operational definition. A 2003 study into the design sector in the state of Victoria identified at least 17 distinct *disciplines* (their emphasis) within the design sector for that state alone (Department of Innovation, Industry and Regional Development 2003).

The situation is amplified by the Victorian industry training board for the sport and cultural industries (including many elements of the design sector). In a 2003 report titled *Design Qualifications Framework project* (Victorian Qualifications Authority and Arts & Recreation Training Victoria 2003), the problems relating to defining design in the Australian context were also recognised, with the report stating that the authors had 'not sought to restrict or define it in absolute terms'. There are at least nine subcategories attached to three thematic areas in the awards. However, the Lab3000 awards are well connected to the premise of sustainability. The key criteria for a tertiary student are the demonstration of design excellence and innovation and the 'responsiveness of the design to the social, cultural and economic environment of its market, users or audience' (Lab3000 2007 website).

This array of perspectives attempts to capture the elusive meaning of design from many different approaches. The issue of definition is a difficult one but one that is becoming more urgent as design educators are pressed to deconstruct 'design' to match pedagogies of training and assessment, particularly in the VET sector. This 'deconstruction' of vocational competence and professional work has proved a source of concern in reviews of training packages in other industries (Harris et al. 1995; Boud 2001; Brady 2002; Smith & Keating 2003).

Again it is important to remain focused on the VET environment as a boundary of this project. Our operational definition of VET is true to Smith and Keating's (2003) definition that it is 'an international term that describes the development and improvement of skills and knowledge for the specific purposes of improvement in an individual's capacity in productive work' (p.3). The study also adopts the four key features that Smith and Keating (2003) use to differentiate the educational 'place' of VET. These are: it has association with industry; association with a job or task; learning is contextualised on and off the job; and it is skills-based. What we need to be mindful of is that

design *skills* do not exclusively reside in the actions of designing; rather they are keenly developed through building a capacity for critical analysis and thoughtful application. Here is where the educational 'place' of design must be contextualised by the vocational field it supports; that is, the design studio for interior design/furniture design, the digital media workstation for multimedia work, or other creative 'spaces' for design work in fashion, textiles and the like.

The need for greater scrutiny of the intellectual capital, or knowledge, component of VET design education has also been identified. This sits alongside the statements from researchers investigating the Australian context who claim that the potential absence of knowledge components from VET programs, particularly in TAFE, is impacting Australia's skills base (O'Connor 2000; Ferrari 2007; Kell 2007).

Competency-based training

Competency-based training has emerged as one of the most widely debated elements of Australia's VET systems (Harris et al. 1995; NCVER 1999; Smith 1998; Smith & Keating 2003). When competency-based training was introduced into Australian VET practice in the early 1990s, the Vocational Education, Employment Training Advisory Committee (VEETAC) defined the principal values of a competency-based system as ensuring the quality of outcomes in training and learning processes and the provision of a framework within which a greater diversity of pathways and training and learning methods can be applied (VEETAC 1992, cited in Watson 1993).

When the Australian Government, through the now defunct Australian National Training Authority (ANTA), chose to follow the international practice of competency-based training and assessment, it set new ground rules for delivery of training and assessment along the given lines of 'task based' assessment (Smith 1998). However, it also sparked debate on the issue of defined industry needs competing with established educational practice. The National Training Board described the transition to competency-based training as 'the most radical reform of Australia's vocational education and training system ever attempted' (National Training Board 1993, p.1).

The relevance to industry drove much of the implementation of competency-based training in the 1990s, in that industry has taken a powerful role in the process. This industry influence has resulted in criticism of competency-based training that has persisted for over a decade. Balancing industry needs and educational principles is also declared as a challenging premise for any education and training system (Harris et al. 1995). In the decade or more since these initial expressions of disquiet there have been persistent voices of dissent from educators who resist this mode of training on the grounds of its perceived industrial bias (Harris et al. 1995; Office of Training and Tertiary Education 2003; Smith & Keating 2003; Stevenson 2003). Many educators examining VET pedagogies are critical of the splitting-up of skills under competency-based training. Stevenson (2003) claims that this practice hides the conceptual whole from the learner, a point well made by participants in the current research.

Most industry-specific design qualifications—as an entry into paraprofessional work—do not appear until the certificate IV level. This highlights the need to redefine the more vocationally focused skills required of designers in these higher-level courses. It has only been in recent years that course curriculum writers have had to shift from task-based writing and grapple with the contexts presented by the creative industries and formulate competencies to align with strategies such as problem-based learning (Curtis & Denton 2003; Middleton 2003; Guy 2005; Yang, You & Chen 2005; Lindstrom 2006). Smith and Keating (2003) also articulate the difficulties in competency-based training delivery associated with the currency of teachers' industry knowledge. This issue cannot be discounted when considering the impact of accountability elements of competency-based training assessment in design education programs at the pre-professional level. Kell (2007) cautions that giving priority to the needs of government and industry in VET over the last decade has 'failed to produce a workforce for the future' (Kell 2007). These issues combine to build a compelling argument to make better connections between pedagogy and professional vocational preparation.

Creative industries and design education

Innovation is a key driver in current economic parlance and is a term preferred by the disciplines of the physical sciences, economics, and management. Professionals from the *creative* industries prefer the term *creativity*. Other terms that have come to encompass the notion of *creativity* include descriptions such as 'creative economy', 'innovation economy', 'knowledge economy' and 'experience economy'. A number of practitioners in fields such as architecture, building construction and engineering are even predicting that the demise of creativity within their professional contexts (including the absence of the appropriate terminology) will erode creative behaviours (Maher 2007).

Robertson (2006) laments the waning interest in the design industry as a 'symbiotic partner' to the manufacturing sector. While Robertson has an insider perspective on the status of *design* as a commercially viable creative industry, he highlights the issue of competing government priorities, policies and agendas. Robertson's argument is that, while design is recognised as important in a supporting role to manufacturing, it has been slow to gather backing as a creative industry in its own right. This dilemma highlights a need to investigate policy directions, including state and federal funding support of design as an autonomous sector of industry.

Evidence from the review of literature and research forums for this project support the need for skilled and knowledgeable design graduates—a hybridised body of people equipped with not only artisan–craft skills but also with critical–analytical thinking skills. Ideally these graduates will be both creative problem-solvers and skilled artisans. In reviewing this potential the literature alludes to a separation of VET approaches from higher education approaches, founded on traditional models and pathways of 'professional preparation' in design fields (Malecha 2002; Robertson 2005).

Design education in the VET sector is yet to establish itself as a legitimate and autonomous player in Australia's creative industries. In a similar context, VET design programs do not appear to be well recognised by the wider design community; however, this may simply be symptomatic of historic divisions between the VET and higher education sectors (Harris, Rainey & Sumner 2005).

This raises separate issues about the divisions (both real and imagined) between VET and higher education in Australia. This issue is set to continue to grow in relevance as historic credential-driven divisions disappear, notably through the increasing number of degree and postgraduate programs on offer from TAFE institutes. The Australian Qualifications Framework (AQF) levels pertinent to this project, especially diplomas and advanced diplomas, represent the foundation of this nexus and offer important potential for innovative and collaborative practices.

Management education

The body of literature surrounding design education as management education in this review has been limited to its most contemporary context. This is consistent with the emergence of design thinking as a 'way of knowing' and an innovative 'way of doing' in management practice. As the project explores the impact of training and assessment practices at the pre-professional and paraprofessional level it will also investigate the transfer of the design process into Australian management practice.

There are well-documented links between creativity and leadership, including the stewardship of creative thinking and behaviour in Australian business (Sarros & Moors 2001). With their direct connections to training package development for the creative industries, Innovation & Business Skills Australia, acknowledging the importance of innovation, commissioned a report that revealed managing creativity as an important new role for the new manager in the twenty-first century (Nicholson & Nairn 2006).

The position of design as a management process is gaining momentum in the Australian context, but is more advanced in other Western economies. To cast some light on current positions, Conley's (2004) writing, on the strategic value of designers in business, repositions design education within a management education context. However, Conley cautions that those designers working from

within design departments will not be able to contribute to improving strategic functions without moving outside the design environment to make their real contribution to management practices.

Owens (2007) extends the view that design thinking is marketable as a service to industry and enterprise, arguing in particular that the process of design thinking drives innovative practice. In reviewing the context in which design thinking is applied, Owens is careful to note that we should expect problems when we move the context of design thinking to the strategic or policy level. This manifests itself at the teaching stage where:

> Teaching design thinking, formally or tacitly, is one thing when the context is a traditional design career in industry or a consulting office. It will be quite another when the context is institutional or governmental policy planning. And our problem is just that: to train a new kind of student for that new context. To train students for roles as policy design synthesis advisors, it will be necessary to create a new kind of design program.   (Owens 2007, pp.25–6)

Issues such as the scale of enterprise in which these graduates will operate also determine how their skills might be deployed as a business 'resource'. For example, the paraprofessional design graduate in a small-to-medium enterprise may be more strategically positioned to develop and assert their professional influence within a management framework than a contemporary who has landed a more operational design role in a larger firm. However, the latter graduate is more likely to be exposed to standardised systems and processes of a globalised industrial base such as ISO 9000 or similar industry-specific standards and endorsement schemes as strategic tools for business.

In the United Kingdom, where design forms part of the creative industries, debate by employers continues over whether diploma-level graduates have the required skills for their industries; yet this sector is reported as having doubled the rate of economic growth of any other industrial sector in the country (Hutton et al. 2007). Similarly, the British Design Council is attributing expenditure on design functions in businesses across all industries as an attempt to increase economic performance. However, that mood is tempered by wider research that speculates that the causal relationship may be inverse:

> The relationship between high performing firms and their spending on design can be often be attributed to other factors such as their overall competitiveness and commitment to high capital spending; the causation may run from their high performance to their willingness to spend on design rather than the other way round.   (Hutton et al. 2007, p.110)

We would argue that, from the discussion generated by our project, there is a genuine need to 'meet in the middle' on the matters of where the appropriate expertise is situated between business and design. A claim that designers, particularly those at the graduate paraprofessional level, are equally positioned as creative and business professionals carries an unrealistic expectation of the student's vocational preparation. However, acknowledgement of a symbiotic relationship between business and design skills that is well connected to industry and enterprise contexts certainly value-adds to VET sector design graduates.

Playing it forward

The apparent separation in VET design education programs from more traditional models of professional preparation (notably higher education programs) has led us to ask questions about the balance of process and product in this period of preparation for professional work, particularly how to dispel over-simplified views of VET practice (in design education) as basic craft skill acquisition. Redefining what constitutes professional skill and how we assess it are central challenges of this project. These issues also led us to question what future generations of designers expect of design as an industry and as a vehicle for innovative practice.

Design is an emerging field of study and its growing importance are only just beginning to be recognised. In fitting design into a matrix of competency, care needs to be taken in understanding

and interpreting it, and courage is needed to recognise that new structures may need to be developed to accommodate it. Clarifying what it is to be a designer and investigating the improvements to learning and assessment strategies attached to that professional identity will be essential to the emerging operational and strategic roles of design and designers in industry.

Methodology

Research design

This project examined the perceptions of practitioners about the effectiveness of existing teaching and assessment methodologies employed in design education in the VET sector. This included emerging expectations of professional competence in the design industry. An assumption of the research is that the perceptions and opinions of education practitioners are underutilised indicators of the effectiveness or otherwise of current assessment methods, particularly in developing high-level creative skills.

Survey method

An extended outline of the survey method can be found in the support document for this report.

A mixed-mode methodology was applied, with quantitative data gathered through a nationally distributed online survey. Qualitative data were also gathered through the online instrument and in follow-up focus groups for each state, involving survey participants and other key informants, including representatives of relevant professional bodies.

In the online survey, to accurately direct the study to those design professionals registered through professional associations and recognised as design educators in the VET context, purposive sampling techniques were employed. To identify potential participants, consortia containing the relevant state-based industry skills councils (and equivalents) were brought together specifically for this project. The survey was in the field for three months. Telephone follow-up was conducted to enhance response and completion rates. The final sample for the survey was 209.

Focus groups were held in state capitals[1], with key informants identified as those persons professionally engaged either as designers or design educators. Management practitioners and management educators from design-related industries were also invited. The number of participants in the focus groups ranged from four to 30. Themes and priorities for discussion were identified by the survey questions that emerged as most contentious, consistent with the emergent design model and with the intent of a focus group (Burns 2000; Kayrooz & Trevitt 2005). These sessions clarified and extended the range of qualitative data and assisted in thematic coding.

Improvements to the research design

Suggested future improvements to the research design applied to this project include:

✧ reducing the ambiguity in the language used between the fields of education and design

✧ addressing inconsistencies between state-based sites by using a single agent

✧ avoiding having the survey open while focus groups are conducted

✧ reducing the length of the survey instrument and the time required for its completion.

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[1] South Australia was the only state where an attempt to establish a focus group proved unsuccessful.

Data and analysis

In this section responses to the survey instrument that revealed significant indicators of opinion or potential indifference are presented. The direction the focus groups took was determined by these indicators. Inductive analysis was limited, due to an overlapping of the survey and the focus groups. This limitation aside, responses to the survey revealed some unexpected results.

The main surprise was the continuation of the debate on the appropriateness of competency-based training and national training packages; we had expected the discussion to focus on creative processes and innovative pedagogies. Competency-based training and training packages remained central themes throughout the project and yielded the most compelling survey data. (Refer to table A1 in appendix.)

Each subset of statements in the survey was intended to frame initial discussions and extend the question for that section. Many statements were deliberately provocative in order to generate clarification and extensions to the argument in the open response sections, which followed each bank of statements, and to encourage 'stepping off' points for the focus groups.

The first question of the survey asks: Can VET programs encourage innovation and creativity for design educators? Therefore to open the survey, a question was asked in relation to the use of competency-based training in VET programs (table 1).

Table 1   Respondents who agreed or disagreed that competency-based training allows teachers to have greater scope for innovation and creativity in delivery than curriculum-based programs (n = 208), %

	n	%
Strongly disagree	30	14.4
Disagree	47	22.6
Somewhat disagree	20	9.6
Somewhat agree	27	13.0
Agree	63	30.3
Strongly agree	21	10.1
Total	**208**	**100.0**
Missing	1	

If we consider the responses in a binary agree/disagree format, they produce an almost flat bi-modal response. It is not a compelling, conclusive result and it raises the question of how design educators perceived the merits and limitations of competency-based training. In focus groups many participants discussed competency-based training in terms of assessment alone. This requirement for ongoing assessment and record-keeping (as a limiting factor of this pedagogy) was repeatedly stressed by participants. Directly critical comments on the use of competency-based training in design education included that it was 'teaching by tickbox' and that 'students hate it and teachers hate it'. Others were more embracing, citing the efficiencies and consistencies of these approaches as particularly useful in their practice. In between these poles lies the opinion that well-informed teaching will prevail, regardless of the mandated framework of competency-based training and national training packages—they could 'dodge the bullets'.

There was limited discussion of innovative pedagogies or strategies to boost creativity. The debate was relatively narrow, even when widely recognised teaching and learning strategies were presented for discussion. This indicated to the researchers that the recognised terminology of educational practice was not widely utilised in the VET design education context. This is not presented as a criticism, rather as a reality of the restricted exposure to a broad range of theories of teaching and learning in VET practice. Brennan-Kemmis and Smith (2006) highlight similar issues when developing discipline-specific pedagogies for VET in New South Wales. They found that much of the difficulty associated with developing discipline-specific pedagogies can be connected to the use of generic approaches to teacher education. Adopting a one-size-fits-all approach to baseline teacher qualifications is declared to be fraught with limitations for contextualisation and transfer (Simons, Harris & Smith 2006). Participants in this project discussed the over-stretching of training package contexts for design subjects at the paraprofessional level. Statements as plain as 'One size does not fit all' and 'competency-based training can never assess level(s) of creativity and innovation in design' again suggested that many teachers were working *around* training packages rather than *with* them.

There were those who were almost blasé in response to questions about the application of competency-based approaches. One practitioner offered an explanation for this: the emerging generation of teachers in his area were graduates of a competency-based system and felt comfortable with teaching from their known experience of its features and limitations. While this was only one response, it did point to issues of generational shift which are likely to impact upon design and management education in the VET sector in the coming years. If we are to consider the experiences of the business community as also impacting upon design graduates from VET programs, then we should be looking at these trends carefully. In reviewing this vocational preparation, the survey questioned 'at what AQF level might task-based training transform into analytical-based training?' These were open-text responses that also yielded quantitative data. Three-quarters of participants indicated certificate IV through to advanced diploma as most appropriate, with certificate IV representing the majority view (36.7%), followed by diploma at 30.0%. These data gave us practitioner insights on when they viewed students as ready to move onto more conceptual work as preparation for design work in industry.

The lexicon limitation

One of the stumbling blocks in exploring ways to innovate was bringing together the language of the fields of education and design. Nevertheless, there were also moments of clarity and general agreement. One of the clearest examples was the response to statements about problem-based learning.

The central tenets of problem-based learning are that students learn to be self-directed, independent and interdependent learners motivated to solve a problem. In a problem-based learning course students typically meet in a small group with a tutor to discuss the problem, using their prior knowledge and experience; they then analyse the problem and formulate hypotheses. They use this information to determine what else they need to understand and solve the problem. Throughout the problem-based learning process the tutor acts as a facilitator rather than a teacher, encouraging useful lines of questioning and analysis and, where necessary, providing some problem-solving structure. At the end of the process both students and tutor assess the quality of their solution(s), as well as the effectiveness of the processes (Kiley et al. 2000).

The following table shows that only a dozen respondents didn't think the approach was essential to design practice in VET.

Table 2   Respondents who agreed or disagreed that problem-based learning is an essential part of VET design practice (n = 208), %

	n	%
Strongly disagree	5	2.4
Disagree	2	1.0
Somewhat disagree	5	2.4
Somewhat agree	24	11.5
Agree	91	43.8
Strongly agree	81	38.9
Total	**208**	**100.0**
Missing	1	

While some design educators indicated a limited understanding of problem-based learning from a pedagogical perspective, an overwhelming proportion agreed that analytical thinking through problem-solving was an essential educational outcome for design students at the certificate IV to advanced diploma levels. This area proved an interesting one for discussion, with only a few participants offering a clearly articulated view of problem-based learning, leading the researchers to initially assume that this pedagogy was little known. However, over 90% of survey respondents agreed that problem-solving was a central design skill in VET programs. Further, when asked if it would be a useful strategy for management education, only six respondents (2.9%) did not see it as useful (table A1, statement 28), a clear indication that this style of learning was deeply connected to current practice in design education in VET.

What became apparent was that problem-based learning of design skills is one of the areas that gives teachers the flexibility to frame student learning in a truly vocational context, based on real-world experiences and scenarios. It led teachers to talk about how they utilised competency-based structures, particularly holistic assessments, to legitimise problem-based approaches. This is supported by 82% of the sample, who felt that competency-based training had impacted on delivery of their project-based course (table A1, statement 3). Once it was determined that competency-based training had made an impact, then the question of 'how' it impacted was explored in the focus groups. A dominant theme that came through was that competency-based training had impacted in a negative way, although this response was tempered by statements about managing the risks associated with approaches not complying with competency-based training.

Questioning ownership

In discussing the issue of 'core elements of design education' with focus group participants, an interpretation of 'core elements' figured prominently. Survey data showed about 60% of respondents agreed that 'core elements were being encouraged' (table A1, statement 4); however, focus group participants seized on the need for context-specific definitions. This again illuminated the issue of whether credit transfer of competencies across programs would transfer appropriate knowledge and skills, as there was some disagreement about the primacy of skills in particular disciplines. These issues were linked to the span of disciplines recognised within the design sector. Here the issue was not the absence of a design education lexicon, but rather a questioning of whether discipline-based interpretations should be utilised at the paraprofessional level. When asking if graduates from VET programs were viewed differently from those from university, almost all respondents were in agreement (table A1, statement 5). Focus groups affirmed that the central difference was that VET graduates were regarded as skilled members of the design community but were not generally recognised as 'professional' designers at a graduate level. The New South Wales focus group identified the differences as university programs providing 'higher' education and TAFE offering 'further' education. These conceptual boundaries are immediately challenged by VET providers in other states now delivering programs situated in the AQF's 'higher' education category.

Innovation was not revealed through 'new' teaching methodologies but rather as iterations of practitioner experience. These experiences could be either moulded into a competency-based training structure or risk-managed through over-stretched training package competencies. This issue of risk management does not carry a deceptive or unscrupulous intent. It was presented as a pragmatic strategy to ensure that design education programs remain functional as both generic and industry-specific VET.

Challenging roles

Examining the role of the teacher as a gatekeeper to professional knowledge, survey respondents were asked if the role of teacher as 'atelier' (guru or mentor) had been affected by competency-based training. Two-thirds of responses in the survey indicated that it had. The majority of textual responses claimed that the change had been negative through the undermining of their professional experience, thereby impeding the range of creative and innovative learning opportunities. For example:

> Most professionals on first encountering competency-based training and assessment are perplexed and find the language and assumptions upon which the system is based as irrelevant to what they have to offer learners.

> If the teacher is prepared to restrict their teaching to the narrowly defined competencies, then wider useful aspects of related learning are often sacrificed.

> Competency-based training requires teachers to assess students according to skills they have learned rather than assessing their holistic learning and aptitude for creativity.

> Competency-based training is too clumsy to dance!

> It creates mediocrity.

> [In] competency-based training the documentation becomes king.

> Pride of staff and their professions is being superseded with assessment spreadsheets.

Positive statements did not focus on the positive impact of a regulated approach to training and assessment but most often underlined the capacity for professional practices of experienced VET practitioners to prevail over prescriptive training models.

There was praise for competency-based training as a mechanism to eradicate 'personality-driven "cowboy" delivery that has occurred in the past'. Again this was qualified with a statement that whatever the system, dedicated teachers will deliver 'exceptional design education outcomes'.

Until tensions between competency-based training, national training packages, and content-based curriculum are resolved, it is unlikely that innovative pedagogies will emerge. However, the design educator in the VET sector is an experienced industry practitioner who is also attempting to replicate authentic practice. To engage students with this 'authentic practice', teaching professionals in non-digital disciplines, for example, furniture design, interior design, or fashion and textiles, can develop innovative capacity through problem-based project delivery, by creating design-workplace conditions 'in studio'. Representatives from digital and information technology-based areas such as graphic design, CAD and multimedia claimed that they are already well aligned with a commercial studio approach.

Most discussion on this topic criticised 'tickbox' assessment structures as perpetuating a reductionist assessment model and as distracting the design educator from developing creativity and a holistic education program.

Who is it all for?

In focusing on contextually driven design education, it is important to consider perceptions about industry and enterprise. Given that one of the stalwart principles of VET provision is its direct association with industry and that the majority of design teachers have worked as design professionals in industry, the survey sought the views of design educators on the competing priorities between VET and industry.

When it was suggested in the survey that industry has unrealistic expectations of design education graduates, slightly more than half (56.3%) of the sample agreed (table A1, statement 6). Discussions in focus groups asserted that employers' expectations of graduates to be job-ready are often connected to particular programs and schools. Therefore, the expectation is framed by what they can reliably expect from courses rather than being attached to a particular vocational need. The United Kingdom creative industries report (Department for Culture, Media and Sport, United Kingdom Government 2007) reflects a cynical evaluation of this as a form of credentialism from employers, citing an increasing number of qualified graduates in the creative field but an ongoing shortage of applicable skills. The tone of the Australian context was more positive, with a focus on evidence-based approaches, such as portfolios and exhibitions, to showcase graduate design skills to industry. It would appear at this level that diploma/advanced diploma graduates are being evaluated along very similar lines to those graduating from university with a 'professional' degree.

The span of industries within the design sector became relevant when respondents to the survey were asked if 'industry promotes competency-based training in design education': 53.4% of respondents disagreed (table A1, statement 8). However, in both the survey and focus groups it was extremely difficult to capture an operational definition of whose 'industry' was being investigated. Focus group participants highlighted that another issue was not only the diversity of design roles, but also how the scale of an enterprise and its operations could impact. VET design graduates need to be job-ready for both small autonomous design teams and also for large multidiscipline teams.

Confusion over defining 'industry' was diminished when participants positioned themselves as design educators. In response to the statement that 'Industry has a well-developed appreciation and understanding of how to develop design talents in students', 63.7% disagreed (table A1, statement 9). In this context the participants clearly felt confident about asserting their professional knowledge of teaching and learning. Similarly, 77.1% expressed their confidence in VET as balancing educating the 'individual' with responding to the needs of enterprise and industry (table A1, statement 10).

When considering the effectiveness of task-based assessment in VET, two-thirds of respondents agreed on its effectiveness, with a similar response to the question of whether elements of critical analysis are incorporated in VET design education (table A1, statement 12). Once references to competency-based training were removed, practitioners appeared to be more positive in their views on teaching and learning. In focus groups, even when discussing issues relevant to competency-based training (such as criterion-referencing and task-based assessments), the exchange was focused on their application in the design studio. We speculate that this is due to a refocusing on transcribing a teacher's professional knowledge experience *into* their practice rather than attempting to draw it *out* of an assessment model.

Touchy subjects

When we stated in the survey that 'design educators are over-sensitive to competency-based training', almost two-thirds of respondents disagreed (table A1, statement 13). While this result is not unexpected, the textual data from the survey and focus groups suggest that this result reflects that design educators are *necessarily* sensitive to competency-based training and not *over*-sensitive.

Revisiting the concepts of 'innovation' and 'flexibility' in delivery under competency-based training, just under half of the respondents did not think competency-based training offered opportunities for innovation (46.1%, table A1, statement 14). However, it was expressed in focus groups that the 'innovative' element of competency-based training was often found by juxtaposing design-friendly pedagogies with record-keeping requirements for competencies—again, as a means of 'dodging the bullets'. There were also some strong supporters. One participant stated that competency-based training 'created capacity for teachers to use a variety of techniques and styles in their work. For those that wish to, it has created opportunities to innovate.'

A more discernible response came from asking whether competency-based training had deconstructed elements of design practice. As shown in table 3, two-thirds of respondents agreed.

Table 3   Respondents who agreed or disagreed that the introduction of competency-based training 'deconstructs' the elements of design practice (n = 206), %

	n	%
Strongly disagree	15	7.3
Disagree	27	13.1
Somewhat disagree	31	15.0
Somewhat agree	66	32.0
Agree	30	14.6
Strongly agree	37	18.0
Total	**206**	**100.0**
Missing	3	-

While some generic principles of design education were described in the open-ended survey responses, there was still concern about who ultimately defined the essential elements on an interdisciplinary level.

In the statement, 'assessment drives the content for teaching design principles and elements', again approximately two-thirds of respondents were in agreement (table A1, statement 16). During the focus groups there was a strong indication that assessment was driving much of the content selection in courses. When it was suggested that 'competency-based training assists in developing the holistic elements of design education', 60% disagreed, with only 4% of participants strongly agreeing with the statement (table A1, statement 17). When presented with the statement in the survey that 'competency-based training gives design educators more flexibility in the delivery of problem-based learning', again just on 60% disagreed with the statement (table A1, statement 18).

Surprisingly, in response to the question, 'Is competency-based training effective for use by design educators?', the responses were relatively evenly split between negative and positive. Open-ended responses, however, provided some clarification for this result. Comments from respondents ranged from those in full agreement with competency-based training ('competency-based training does allow innovation for those few who have the energy and inclination') to advocates of curriculum-based approaches stating 'there is no problem with curriculum with clear performance objectives and criterion-referenced assessment. The problem with competency-based training is that it imposes bureaucratically devised standards', to pleas for improvement such as implementing 'a system that identifies, encourages and rewards excellence. Enough mediocrity already'—suggesting that the current state of affairs was a lacklustre experience for all stakeholders.

Looking across to industry

In examining the implications of competency-based training and assessment approaches for design-related industry practice, statements were presented in an attempt to identify whether the intention of industry-led competency development was being realised. The purpose of this part of the survey was to refocus on VET as vocational preparation, generally and specifically for design. Interestingly, responses in this section were confusing. Just over half (52.5%) agreed that 'competency-based training and assessment practices assist in best-practice teaching in VET (table A1, statement 19); yet less than half (48%) assert that 'competency-based training makes for better design practice by recent graduates from VET programs' (table A1, statement 20). We can reasonably deduce from these data that, while design educators have a reasonable degree of faith in competency-based training as a VET practice, they do not readily transcribe those values to design education in VET.

What fits where?

When questioned whether problem-based learning was often confused with design education, just over half disagreed (table A1, statement 21). This was a result explored specifically for clarification in focus group discussions. Problem-based learning in a secondary education context often uses design problem scenarios to help develop problem-solving skills. This approach is extending into lower-level VET qualifications with a design focus, provoking questions about its authenticity as a 'design skill' at that level, in the absence of other 'core elements' of design education. The essence of this theme emerged from issues of professional identity. If everyone wants to call him/herself a designer, what educational strategies should be identified as particular and specific to design? Unfortunately, the survey statement relating to the core elements of design and their attachment to problem-based learning was not well constructed in the survey and 70.4% of the sample landed in the 'somewhat' categories (table A1, statement 22); focus groups confirmed this assumption.

By contrast, responses to the statement that 'competency-based training places more emphasis on outcomes than process' saw 71.9% of respondents in agreement (table A1, statement 23). While hardly a provocative question, it was a good measure of opinion and again alluded to some ambiguity in perceptions of current VET practices. One of the cited strengths of competency-based programs is its capacity for student-focused, self-paced approaches (Harris et al. 1995; Smith 1998; Smith & Keating 2003). Yet just less than half the responses to the survey agreed that a 'traditional heuristic (self-learning) approach to design education is supported by current practice in competency-based training' (table A1, statement 24).

There was a strong response to the survey statement that 'competency-based training's *bottom-up* approach (focusing on lower AQF levels) facilitates the flexibility necessary for innovation in design education'. Seven in ten respondents indicated that a bottom-up approach would not give them more room for innovation in their practice (table A1, statement 25). This indicates a tension difficult to define in the data. But design educators have appropriated creative problem-solving and conceptual skills as their domain, and earlier efforts in lower-level VET courses may be simply 'playing in the margins'. This is not to suggest a sense of arrogance as much as sense of professional confidence. With 'room to move', design educators could be more creative in the choices of design-focused pedagogies. This is an important dimension to consider in transferring design education principles into educational strategies for business.

To close this section of the survey, participants were asked, 'Does competency-based training affect the core delivery outcome(s) of design education?' Two-thirds of respondents agreed. In the open-text explanations that followed the comments were largely negative about regulated prescriptive approaches. However, there was thoughtful discussion to balance the argument, such as that, even under competency-based training, 'there is no reason why programs can't be enriched with different styles of delivery' and 'the core outcome(s) should remain the same … I see competency-based training as a different method for achieving the same outcome.' This type of statement indicates that, regardless of the acknowledged resistance to extant procedures and structures, it is an issue that is being thoughtfully analysed by VET design practitioners. Focus groups facilitated some thoughtful and informed debate, debate unlikely to have been conducted in the absence of the project.

Extending the reach

In exploring the issue of how competency-based training and assessment is currently applicable to the preparation of design and management professionals, we interrogated some of the assumptions brought to the study through the literature and preliminary consultations with VET practitioners.

When challenged in the survey that 'there is evidence of competency-based training's success in delivering improved outcomes for design education (when compared with more academic design programs)', the response was tentative. With 36.9% who 'somewhat agree' and 56.8% spread across 'somewhat categories' collectively, there was no decisive indicator (table A1, statement 26). However, any sense of indifference was quashed, when 72.3% agreed that 'The mix of units of competency currently available in design programs are too diverse to consolidate into a single

"best-practice" design education environment' (table A1, statement 27). This again confirms the VET practitioner claim that competencies are being stretched too thinly across contexts and consequently undermining their relevance.

When responding to the statement that 'Industry-focused training packages remain true to the development of good design graduates' (table 4), a number of strong negative indicators emerged: 41.7% of respondents disagreed or strongly disagreed. Again this highlighted that VET design educators feel that they have something important to 'value add' to industry practice rather than acting in a subordinate role.

Table 4   Respondents who agreed or disagreed that the industry-focused training packages remain true to the development of good design graduates (n = 206), %

	n	Valid %
Strongly disagree	34	16.5
Disagree	52	25.2
Somewhat disagree	32	15.5
Somewhat agree	51	24.8
Agree	23	11.2
Strongly agree	14	6.8
Total	**206**	**100.0**
Missing	3	-

In responding to the statement that 'Creativity gets lost in the matrix of competencies in training package programs' practitioner concerns were again revealed: three-quarters of respondents agreed, with 42.2% in the 'strongly agreed' category (table A1, statement 30). This represented the largest response at an extreme of the scale in the survey. In both the open-ended survey responses and focus groups, the issue of training packages constraining creativity emerged frequently, as did the impact of prescriptive assessments and the 'inappropriateness' of some competencies. Teachers suggested that students needed the room to take (design) risks, one respondent suggesting that a key skill to evaluate might be the 'preparedness to innovate'. This topic of a creative risk-management approach was central to discussions on what design education had to offer in terms of business/management strategies. Participants, as teachers engaging with VET students at the paraprofessional level, were locating themselves as apart from, but knowing about, industry practice.

What's on offer?

The natural extension of this position was to examine the authenticity of design practices in business and management contexts. Given the context of survey responses to this point, the first statement that 'Design practices are readily transferable to management practice' could be expected to return a positive result. This was the case, with 60.2% of respondents in agreement (table A1, statement 31). However, focus groups reported that, while it was plausible to transfer these practices, caution was needed to prevent over-stretching of competencies.

Responses to statements on 'product realisation' affirmed that, for VET design educators, the processes are well defined in design education, but not so in management education. However, a conclusive result did not emerge, with 76.7% of the responses in the 'somewhat disagree' and 'somewhat agree' categories on the management education item, and only a marginal difference between the two (40.8% versus 35.9%, respectively, table A1, statement 33). These items need more careful consideration in the survey design.

In contrast to confusion about 'product realisation', responses to the statement that 'Risk management has an important role in design education and industry' were clear cut: almost 80% of respondents agreed (table A1, statement 36).

It is of little surprise that, when statements such as 'Creativity and innovation are considered intuitive attributes of design work' and 'Good designers generate creativity and efficiency in the

workplace' were made, the majority of respondents agreed (table A1, statements 34 and 37). In focus groups and in the open-ended survey responses the participants reflected that, for designers, creativity and innovation were (almost unquestionably) intuitive elements of their practice. However, it was expressed as more than a work practice, it was a 'way of knowing', built as a consequence of how designers critically view and interact with the world around them. This belief supports the claim that designers (regardless of industry specialisation) have a great capacity to add to business practice.

The survey item stating that 'Non-designers can grasp the "otherness" of the design process' highlights a disparity in the participant view that a designer's critical–creative capacities are readily acknowledged. While 58.7% of responses were in the affirmative, 34.5% were marginal in the 'somewhat agree' category. If we focus on the other than 'somewhat' categories on the scale, the remaining frequency counts represent 51 responses (24.7%) that disagree and 50 (24.2%) that agree (table A1, statement 35). Again, the span of industry specialisations involved in the project made it difficult to decipher. Focus groups added that it was also the scale of the enterprise that contributed to this grasp of the 'otherness', particularly in those enterprises where design teams were deployed and managers had an understanding of the design process as non-linear and complex.

Issues and recommendations

Key issues

The key issues from the project include the following.

✧ There is a need for design educators in VET to identify and articulate their unique educational position.

✧ The diversity of stakeholders in the design sector is problematic for the resolution of VET-based issues.

✧ The extension of innovative design protocols into business practices will be futile without extensive consultation between enterprise, industry and VET providers.

✧ Competency-based training is still highly contentious in design education in the VET sector.

✧ Appropriate design pedagogies and complementary learning models need to be identified.

✧ Conceptual skills are essential for VET design graduates at certificate IV through to advanced diploma levels.

✧ Without remedial action to design education, particularly at the diploma and advanced diploma levels, the VET sector risks losing industry's faith in the capacity of such graduates to contribute effectively to conceptual design work, and risks losing students at these levels to the higher education sector.

✧ There is an absence of a universal lexicon between the individual industries connected to the design sector.

Recommendations

In light of these key issues, the following recommendations are made.

✧ Design educators, as VET practitioners, need to establish a consolidated national voice.

✧ Further study should extend the examination of pedagogies to complement design skills.

✧ The national industry skills councils should consult widely in the VET design education community in the development of the certificate IV to advanced diploma qualifications in visual arts, craft and design training packages.

✧ A lexicon of interdisciplinary design language should be developed.

✧ Open and extensive communication with business educators needs to be cultivated.

✧ Educational effort should be refocused on the learner rather than on industry and enterprises, and the role of VET, and consequently the role of TAFE, in design education, clearly identified.

Conclusion

Acknowledging the importance of the design practitioners has been central to this project. Through them we have discovered that there are wide-ranging opinions on design education in the VET sector. The project engaged practitioners, encouraged critical thinking about their practice and motivated them to communicate their ideas on creative and innovative pedagogies for design.

We would speculate that there is a mood of enthusiasm and anticipation about the current impetus behind design education in the VET sector; however, there is likewise a sense of frustration about how to capitalise on this momentum. There are issues of primacy between historically sound 'professional' modes of preparation of designers and recently credentialled paraprofessional (vocational) programs. These issues are arguably more apparent to those standing away from the design sector than those who live inside it. This may be due to an ambivalence about the professional status of designers as educators working in VET, as opposed to educators teaching design. There is research to support shared perceptions of the function and purpose of organisations promoting positive behaviours such as innovation and creativity (Saal & Knight 1995; Quirke 1995). Kelley and Littman (2001) cite this creative capacity to innovate as a particularly important component of successful business practice in the design community.

There are also issues of what constitutes innovative practice in a sector that is founded on creativity and exploring new ways of knowing or new ways of doing. Similarly, the need for an articulated sense of 'place' for distinctive strands of design should be explored. For example, specialisation of departments may encourage centres of excellence particular to specific institutions, centres where the pooling of intellectual capital and artisan skills will be strategically important to the quality of design education in the VET sector. This is emerging in initiatives such as the Design Centre Enmore in the inner suburbs of Sydney and the Western Australian School of Art, Design and Media in Perth. The visibility of these centres stood as strong indicators of place and identity, a home for the many facets of VET design education to converge. In these centres we heard statements about connection and visibility in both industry and educational communities. This holds true to the ideals of VET as an accessible resource for those who do not proceed down the narrow academic pathway from school to university. By making a post-compulsory educational 'choice' for a VET program in a sector with a strong history of higher education pathways to professional status, the VET student has already been unwittingly positioned in a lower academic stratum (Teese & Polesel 2003; Anderson, Brown & Rushbrook 2004).

Paradoxically, while the community at large and politicians in particular laud the value of skills developed inside the VET sector, we are culturally anxious about blurring tertiary education boundaries. The advent of TAFE degrees is already disturbing historic divisions between sectors, in terms of credentialling. Of greater potential consequence is the disruption of the institutional role and purpose of TAFE. The impact on the role of teaching staff will begin to emerge in those fields of educational practice that ultimately reach across tertiary divisions. Design education represents the opportunity to combine, conceptually at least, VET as vocational preparation and VET as professional education.

The practitioner perspective did not advocate TAFE institutes as pseudo-universities; rather it articulated a role of standing as something different from (but not necessarily subordinate to) higher education. In instances such as product and interior design, the studio-based and project-based practices are readily supported as the best educational place to innovate. In this context innovation and creativity were attached to both the teaching and the learning.

However, the consolidation of closely related elements of design is required to build arguments that compete for capital investment against other priority areas at any given time. It is argued that now is the time for VET design educators to be proactive while they enjoy the political and

educational spotlights. This may be stating the obvious, but what is also apparent in the participant voice is an apprehension about diluting the intent of national training packages (delivered through competency-based training). The dilution is apparent in the over-stretching of 'competence' beyond appropriate contextual limits (Anderson, Brown & Rushbrook 2004), particularly in diploma-level VET programs (NCVER 2000). Other parts of the VET community continue to critique the appropriateness of competency-based training in discussions of pedagogy and innovative practice (NCVER 2000; Coghlan 2007).

This thinking is not without its perils: we see a ferociously competitive business model emerging between institutions vying for government funding, accelerating a move from collaborative to competitive practices in Australia's post-compulsory educational landscape (Anderson, Brown & Rushbrook 2004; Kell 2006). The notion of an Australian Institute of TAFE has now been brought to the political agenda (Kell 2006). In light of what has been learned in this project, any move towards a homogeneous national model would require significant resources and robust risk-management strategies for design education. Resources aside, it is timely to re-open the dialogue between states at the practitioner level. While market competition may be healthy in economic parlance, it also carries the potential to erode goodwill and trust between providers. If competition, or issues of who owns design, continue to interrupt the discourse on design education in the VET sector, then it is destined to remain fragmented.

This project has demonstrated that it has been necessary to have further discussions about competency-based training and training packages. As we have seen, this project deviated from its original objective because design educators seized the opportunity to talk about pedagogies that restrict or enhance their work as design educators in VET. This research was generally well received by these participants as the experts who have to deal with skill development and student achievement, but who rarely have the opportunity to discuss these as a critical mass. Many claimed that they could simply work around the limitations in place, but in doing this their expertise is largely devalued, or even ignored, as a result of what they articulated as a dysfunctional approach to design education at this level. This could not be said to be a universal claim across the sample, but it was certainly a dominant voice.

To move forward, we now need to get on with identifying where we can improve practice through innovation and creativity, including identifying where it is appropriate to get 'back to the future' with both established and emerging pedagogies for design. It will require an open dialogue with industry and the investment of risk capital to properly evaluate the effectiveness of design practices for managers. Business-trained managers (and management educators) will need to be informed and prepared to embrace design practices. Similarly, designers as design educators will also need to be open to adjusting their practice in commercial contexts. Without developing the capacity to take risks to open up new ways of dealing with old problems, there cannot be a sensible amalgamation of approaches.

We had hoped this project would be the impetus for a hybridised approach to design education in VET—to move past the longer-standing issues of vocational/occupational identities and competency-based training. Moving on could not be attempted because the issues of surviving existing practices prevailed.

During the project we were also surprised that there was not more discussion on learners and their needs. Where the topic was introduced, it was very much concerned with cautiously criticising industry training organisations and skills councils for excluding the individual from the discourse and over-emphasising industry and commercial needs. It should be noted that, while this concern was articulated in the design project, it is also a broader view in VET (Smith & Keating 2003; Anderson, Brown & Rushbrook 2004; Kell 2006). In addressing learner needs in vocational preparation, the issue of how and why we develop conceptual skills should be carefully examined. The need for a 'critical eye' and holistic problem-solving skills as essential vocational preparation was emphasised throughout the project. Similarly, a number of parameters need to be developed that will focus these skills at an appropriate level; we need to stay connected to context and to the

sense of educational 'place' that the courses will occupy. Such a strategy is not intended to limit the aspirations or opportunities of the learners, rather to focus efforts where they are needed.

It stands to reason that, until the participants had 'unpacked' their own practitioner baggage on teaching as professional practice, they would be unable to adequately accommodate the needs of their learners. As a philosophical issue in VET, Smith and Keating (2003) remind us that many teachers will 'never accept that the sole purpose of VET is to train people in specific workforce tasks' (p.173). Therefore the first effort to effectively invest 'risk capital' should be towards a rebalancing of the intentions of VET design education, where the critical eye and creativity coalesce with expert craft skills.

If we are truly focused on design education in a VET sector strategically positioned in a knowledge-based society, we should be creating educational opportunities that resonate with the tenets of social, economic and environmental sustainability. This is not seen as significantly different from the responsibility that befalls all other educators in the twenty-first century, but if we dedicate ourselves to the *design* rather than *repair* of vocational programs, there should be fewer educational 'bullets' to dodge.

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Support document details

Additional information relating to this research is available in *Creating place: Design education as vocational education and training—Support document*. It can be accessed from NCVER's website <http://www.ncver.edu.au/publications/2022.html>. This document includes an extended review of literature and research methodologies, as well as an overall bibliography for the project. It also presents the frequency tables/graphs from the survey data and a text-based version of the survey instrument.

Appendix: Frequency table

Table A1   Per cent of respondents agreeing with statements

Statement		Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1	Competency-based training (CBT) allows teachers to have greater scope for innovation and creativity in delivery than curriculum-based programs.	14.4	22.6	9.6	13.0	30.3	10.1
2	Problem-based learning (PBL) is an essential part of vocational education and training (VET) design practice	2.4	1.0	2.4	11.5	43.8	38.9
3	Competency-based training has impacted on project-based delivery of design education	1.0	4.8	12.5	29.8	37.5	14.4
4	Core elements of design education are currently being encouraged through competency-based training	12.5	16.8	12.0	22.1	30.8	5.8
5	In the design industry, VET practice is positioned differently from that in higher education	0.0	1.0	2.9	25.5	52.4	18.3
6	Industry has unrealistic expectations of design education graduates	2.4	20.4	20.9	41.7	10.2	4.4
7	Criterion-referenced task-based assessments are currently used at all levels of VET design programs	3.9	20.4	35.9	27.7	11.7	0.5
8	Industry promotes competency-based training in design education	9.2	26.7	17.5	19.4	20.4	6.8
9	Industry has a well-developed appreciation and understanding of how to develop design talents in students	14.6	24.8	24.3	27.2	7.3	1.9
10	The role of VET is balanced between educating the 'individual' and responding to the needs of industry and enterprise	6.8	4.4	11.7	25.2	29.6	22.3
11	Task-based assessments are used effectively in all areas of design education in the VET sector	4.9	14.1	13.1	37.9	24.8	5.3
12	Elements of critical analysis are present in VET design education program delivery	4.4	22.3	7.8	32.5	26.7	6.3
13	Design educators are over-sensitive to competency-based training for the design industry	13.6	22.8	27.7	14.1	11.7	10.2
14	Design educators in the VET sector have the opportunity to innovate or deliver programs more flexibly with competency-based training	18.4	14.6	13.1	18.0	16.0	19.9
15	The introduction of competency-based training 'deconstructs' the elements of design practice	7.3	13.1	15.0	32.0	14.6	18.0
16	Assessment drives the content for teaching design principles and elements	4.9	10.7	20.9	28.6	19.9	15.0

Statement	Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
17 Competency-based training assists in developing the holistic elements of design education	20.4	24.3	15.0	12.1	23.8	4.4
18 Competency-based training gives design educators more flexibility in the delivery of problem-based learning	19.4	21.4	18.9	12.1	12.6	15.5
19 Competency-based training and assessment practices assist in best-practice teaching in VET	12.1	18.9	16.5	24.3	23.8	4.4
20 Competency-based training makes for better design practice by recent graduates from VET programs	13.1	22.3	16.5	28.6	16.0	3.4
21 Problem-based learning (PBL) is often confused with design education	4.9	12.1	37.4	19.4	20.9	5.3
22 Core elements of design can be transferred below AQF certificate III to effectively accommodate problem-based learning principles	5.8	9.2	33.5	36.9	13.1	1.5
23 Competency-based training places more emphasis on outcomes than process	6.8	4.4	17.0	15.5	24.8	31.6
24 The traditional 'heuristic' (self-learning) approach to design education is supported by current practice in competency-based training	12.1	24.8	14.1	23.8	17.5	7.8
25 Competency-based training's bottom-up approach (focusing on lower AQF levels) facilitates the flexibility necessary for innovation in design education	24.8	14.1	31.6	11.7	17.5	0.5
26 There is evidence of competency-based training's success in delivering improved outcomes for design education programs (when compared with more academic design programs)	7.8	22.3	19.9	36.9	8.7	4.4
27 The mix of units of competency currently available in design programs are too diverse to consolidate into a single 'best practice' design education environment	4.9	12.1	10.7	21.4	35.9	15.0
28 Design-based problem-based learning scenarios can be utilised in management education	1.5	0.0	1.5	49.5	28.6	18.9
29 Industry-focused training packages remain true to the development of good design graduates.	16.5	25.2	15.5	24.8	11.2	6.8
30 Creativity gets lost in the matrix of competencies in training package programs	7.3	11.7	6.3	18.0	14.6	42.2
31 Design practices are readily transferable to management practice	1.9	14.1	23.8	32.5	17.0	10.7
32 Product realisation processes are well defined in design education	1.5	18.9	23.3	43.2	12.6	0.5
33 Product realisation processes are well defined in management education and training	1.5	15.5	40.8	35.9	5.8	0.5
34 Creativity and innovation are considered intuitive attributes of design work	1.5	5.8	11.2	25.7	36.4	19.4

Statement		Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
35	Non-designers can grasp the otherness of the design process	5.8	18.9	16.5	34.5	21.8	2.4
36	Risk management has an important role in design education and industry	0.5	6.8	13.1	27.7	36.9	15.0
37	Good designers generate creativity and efficiency in the workplace	1.9	3.9	5.8	19.4	32.5	36.4

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