High level vocational qualifications in theory and practice: the operationalising of certain vocational graduate qualifications

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1. Abstract

The paper aims to examine the industrial relevance and educational effectiveness of certain of the newly developed vocational graduate qualifications - the Vocational Graduate Certificate (VGC) in Architectural Digital Illustration, the Vocational Graduate Certificate and Diploma (VGC/D) in Culinary Arts and Kitchen Management and the Vocational Graduate Certificate in Applied Biotechnology (Pharmaceuticals and Nutraceuticals).

The research presented derives partly from a Masters of Education dissertation tracing the development of these qualifications from their initial research and concept origins, through the process of curriculum development, to the first instance in which the qualifications are taught. In so doing, it seeks to assess whether the qualifications have the capacity to achieve what they are purported to deliver (in policy and theory) - which is to provide training for the associate professional workforce, where large skills shortages have been identified. The research also aims to identify the potential strengths and limitations of the qualifications, particularly in relation to the genre in which they are written, tending as it does to privilege the performing of skills to the detriment of acquiring higher-order discipline knowledge.

2. Introduction

This paper discusses the development, initial enactment and evaluation of selected early examples of vocational graduate certificates and diplomas at a large metropolitan institute of technology. In so doing, it aims to inform the future development and enactment of vocational graduate certificate and diploma programs more widely. The paper traces the evolution of these high-end vocational qualifications from their conceptual origins through the process of curriculum development and accreditation to their initial enactment. It thereby seeks to appraise whether these programs have the capacity to achieve what was proposed for them – in both policy and practice. That is, the degree to which they can provide effective training for the associate professional workforce where skills shortages have been identified (Allen & Gientzotis, 2002). The practical investigation constitutes research taking the form of smaller case studies. This approach has been selected because a focused and detailed appraisal of the programs is deemed important, both on account of their novelty and on account of their thus far only having been undertaken by small student cohorts. As such the discussions here can only generate early and very provisional findings and conclusions. Nevertheless, such findings will form a basis on which to construct a more sustained appraisal of the usefulness of these programs.

More generally, the larger study aims to identify the potential strengths and limitations of such vocational graduate programs. These characteristics are considered in the particular context of the programs' educational intents (i.e. objectives) being in

the format of units of competency. Units of competency are statements of key functions or roles in a particular job and necessarily, VGC/Ds are competency-based, even if Performance Level Assessment (PLA) is also applied. This focus on measurable outcomes is often seen to emphasise observable skills to the possible detriment of underpinning knowledge (the knowledge and understanding said to underpin performance). This paper articulates the viewpoint that higher-order thinking and acting capacities comprise a significant component of associate professionals' work and that this should be acknowledged and foregrounded more directly in the resultant curriculum documents. It argues that the requirement for vocational education and training (VET) graduate certificates and diplomas to be written in units of competency and in a competency-based format results in the marginalisation of underpinning knowledge.

Besides its under-emphasis on knowledge, the unit of competency format is further characterised by the incorporation of employability skills (i.e. generic skills inserted into curriculum documents, namely, communication, teamwork, problem solving, planning and organisation, technology, learning, self-management and initiative and enterprise). These are articulated within the performance criteria that outline the standards of performance students must demonstrate in the workplace; these descriptions of the quality requirements of the result of a unit of competency obtained in labour performance (e.g. *Adjust meals and menus in line with evaluation findings* - as an example of problem-solving). The employability skill of self-management and, initiative and enterprise, however, feature prominently in the research findings above all others. The remaining employability skills seem potentially too generic to be particularly significant, and received scant reference from the student and teacher informants in the practical investigations. It is therefore argued that the employability skills need to be appropriately contextualised but also that certain appear to be more prominent than others in the VGC/Ds.

3. Research method

The selected research question in the larger study relates to identifying the potential strengths and weaknesses of vocational graduate programs and evaluating their suitability to provide training for the contemporary work context. The question focuses generally on vocational graduate programs in the abstract and specifically on two programs in detail and a third more occasionally. The research proceeds from a provisional definition that views vocational graduate programs as training for associate professionals, endeavouring to construct a bridge between theoretical and vocational skills and between the higher vocational education and the higher education sectors. The larger study seeks to test this definition, thus aiming to identify obstacles preventing vocational graduate programs from fulfilling their promise, as well as bringing to light factors favouring the potential realisation of that promise. The methods employed in approaching the research question include textual analysis and deconstruction, observation and interview, evaluation, interpretation and the distilling of/reconciling, validation and articulation of all emergent themes.

Textual analysis and deconstruction of policy documents, key documents associated with VGC/VGD accreditation, the curriculum documents and the CDAC Minutes were performed in an early phase of generating and collecting data. Further, the tool of observation of the manner in which the programs have been/are being enacted, and

observation of some of the outcomes of the programs (in the guise of viewing the end of semester exhibition for the VGC in Architectural Digital Illustration and participating in the gala dinner for the VGC/D in Culinary Arts), were also employed. Acknowledging the potential for subjectivity inherent in all research and particularly in qualitative research targeting programs developed and implemented at my own institute, I was mindful to deconstruct my own position as researcher: I attempted to be cognizant of my own potential biases at all times, whereby I would naturally wish to see work performed at my institute as being of high quality and rigorously carried out. Thus the text created by my renditions of events was "deconstructed"; my biases and taken-for-granted notions were exposed, and at times, alternative ways to look at the data were introduced (Denzin & Lincoln, 2000: 661). My intention was thereby to balance this natural predilection to view work performed at my institute positively against the reality of a study of new programs, where difficulties and inconsistencies in the first instance of implementation were to be expected.

The research thus proceeded from an analysis of the conceptual origins of the programs, the curriculum development processes and an observation/interrogation of key aspects of the manner in which the programs were delivered for the first time. The participants in the next phase of the study comprised a sampling of students in both programs as well as lecturers in both programs. A small cohort of students from each program was interviewed on a voluntary basis, as well as lecturers from each program. Relevant industry representatives were also consulted, but on account of limited scope in this paper, their perspectives are silenced here. The participants in the study were all adults with at least some experience of the world of work. The data obtained from the participants was analysed for repeated themes, interrogated and validated. It is notable that the selection of participants was not able to be particularly inclusive (of age, gender, race and other factors) because of the available pool of potential participants being quite small.

In terms of this sampling, interview was employed as a key tool for gathering data, with its selection being based upon its capacity to draw out dialogue examples (i.e. data) that could represent the experiences of the participants. It was considered that interview as a major gathering tool favoured the encouragement of the investigated experience of the programs engaged in through expression and elucidation. In the investigation the intention was to obtain the participants' views on the phenomena, i.e. the vocational graduate programs, under investigation. The interview thus facilitated the gaining of explanations and information on material that was not directly accessible: perceptions, attitudes and values, matters that were difficult to obtain by alternative methods. The utilisation of the semi-structured interview tool permitted depth to be achieved by providing the opportunity on the part of the interviewer to probe and expand the interviewee's responses. It further permitted a certain balance between the interviewer and the interviewee to develop, providing room for negotiation, discussion, and expansion of the interviewee's responses (Partington, 2001).

The interview methods comprised a combination of informal conversational interview (where questions were generated in response to informal interaction with the participant) and standardised open-ended interview (where pre-conceived questions were presented). The pre-focusing of questions and topics for the interviews aimed to direct the participants' responses toward my research question and to reassure the

participants that the questions would not proceed into territory unfamiliar to them. Examples of questions provided in advance for student-participants include: following:

- o To what extent, if any, does this program differ from previous training/education undertaken? Please explain.
- o To what extent, if any, does this program resemble previous training/education undertaken? Please explain.
- o What kinds of knowledge and what kinds of skills are being transmitted in this program?
- o Do you think this training program is relevant to your current or a potential future workplace?
- o What were your motivations in undertaking this training? Etc.

The data once collected from the two groups, lecturer and student, was distilled into thematic groupings, interrogated and validated with the interviewees for potential misapprehensions. (Industry perspectives also featured in the larger study).

4. Findings and discussion

The study revealed that vocational graduate programs have particular sets of characteristics, including specialisation, complexity, breadth or depth of knowledge and skills, the promoting of the assumption of responsibility for the work of oneself and others, the making of high-level judgments about work and so on. Vocational graduate programs became a national priority in March 2005, when authorised by the Ministerial Council for Employment, Education, Training and Youth Affairs (MCEETYA) (Foster et al, 2007:13). However, their genesis is far earlier, albeit through individual institutional arrangements. Certainly, graduate certificates and graduate diplomas have been offered through the Victorian VET system since the early 1990s, with these appearing to resemble higher education graduate certificates and diplomas more closely than vocational programs. The recent national imperative for vocational graduate programs, as identified by MCEETYA, was articulated as a response to demand for vocational qualifications with 'outcomes oriented towards the specialised needs of industry and enterprise' (www.aqf.edu.au). This imperative was motivated by the acknowledged increasing complexity of workplace and occupational requirements, skills shortages, concerns about unresponsive higher education and so forth.

In appraising the potential utility of vocational graduate programs for equipping workers for the present and future workplace, it is necessary to consider the contemporary context of work. It has become a commonplace to assert that the nature of work in contemporary society is changing rapidly and becoming more complex, with an increasing number of people employed in technological and professional occupations and, therefore, requiring high-level skills. The volume of information manipulated in the current era is a topic much discussed, and, on the theme of the symbolic manipulation of information, Castells asserts that the:

> generalization of knowledge-based production and management to the whole realm of economic processes on a global scale requires fundamental social, cultural and institutional transformations …(2000:100).

In this way, the global economy is declared to be 'informational' rather than 'information-based', where the cultural and institutional attributes of the entire social system participate in the diffusion and implementation of new technology. This is claimed to co-exist with 'the emergence of an industrial culture, characterised by a new social and technical division of labor' (2000:100).

In analysing the complexity of contemporary technological work, Barley and Orr declare that it:

> sits at the intersection of craft and science … It is a curious anomaly in which mental and manual skills coexist inseparably, if not always comfortably' (1997:12).

Such work is defined in terms of four characteristics:

> (a) the centrality of complex technology to the work,
> (b) the importance of contextual knowledge and skill,
> (c) the importance of theories or abstract representation of phenomena, and
> (d) the existence of a community of practice that serves as a distributed repository of knowledge of relevance to practitioners (Barley & Orr, 1997: 12).

Designed for such industrial exigencies, the VGC/Ds are characterised by their ability to support the development of high-level vocational capabilities in either broad or specialised areas of knowledge and skills, always building on prior knowledge and skills. More precisely, they offer the 'possibility to incorporate substantial breadth, depth and complexity involving the initiation, analysis, design, planning, execution and evaluation of technical and/or management functions in highly varied and/or highly specialised contexts' (http://www.aqf.edu.au/vgc_vgd.htm). That is, they permit greater specialisation or breadth/deepening of knowledge of the elements contained in diploma curricula, relating to technical or management functions. They may also incorporate 'applications that make significant, high level, independent judgments in major, broad or specialised planning, design, operational, technical and/or management functions in highly varied and/or highly specialised contexts' (http://www.aqf.edu.au/vgc_vgd.htm). Alternatively, they may include assuming responsibility and broad ranging accountability for the structure, management and output of the work of others and/or functions. In other words, they might deal with the making of judgments and assumption of responsibility for the work of oneself and others.

It is also notable that the degree of emphasis on breadth as against depth of knowledge and skills may vary between programs at this level (http://www.aqf.edu.au/vgc_vgd.htm). For instance, in the programs referred to in this study, the VGC/D in Culinary Arts seeks to develop capabilities in broad areas of knowledge and skills - culinary arts, food styling, human resources management, financial management, entrepreneurship and innovative marketing. The VGC in Architectural Digital Illustration, by way of contrast, is much more highly specialised, focusing entirely upon digital design and illustration. The VGC in Applied Biotechnology (Pharmaceuticals and Nutraceuticals) is again more specialised; it comprises advanced analytical chemistry (written up as method development so as to appear 'practical' and task oriented), as well as quality control processes in pharmaceuticals and nutraceuticals. So, in these ways, these programs fall under the umbrella of vocational graduate programs, with the latter encompassing a high level

of specialisation and the former comprising a broad range of associated skills and knowledge.

The definition of VGC versus VGD yields some differentiation in terms of the level of responsibility assumed by the worker for the work of self and others. In comparing the VGC outcomes to those of the VGD, one discovers: i) that the VGC candidate needs to demonstrate self-directed development and achievement of broad and/or specialised areas of knowledge, whereas for the VGD candidate, these areas of knowledge are highly specialised. It also emerges ii) that the difference between VGC and VGD outcomes is the difference between specialised (VGC) and highly specialised functions (VGD), where VGC functions are further defined as technical or management functions. It is asserted iii) that the VGC candidate works with ideas, whilst the VGD candidate handles complex ideas, and iv) that the VGC level worker shows a command of skills in complex contexts, whereas the VGD level worker displays an expert command of skills in complex and/or highly specialised or varied context. Final distinctions exist to the extent v) that the VGC level worker assumes broad ranging accountability for personal outputs, but the VGD level worker assumes full responsibility and accountability for personal outputs, and vi) that this broad ranging accountability is for the structure, management and output of the work of others at VGC level, as opposed to the VGD level. At the VGD level, full responsibility and accountability is assumed for all aspects of the work of others, including planning, budgeting and strategy (http://www/aqf.edu.au/vgc_vgd.htm).

The VGD level is therefore deemed one of expertise and generally more complex, abstract and strategic than the VGC; this is to be understood in a hierarchy of qualifications where one progresses from the VGC to the VGD, where the VGD is the ultimate (vocational) level. The association of the VGD with expertise and, by implication, the declaration of expertise to be an outcome of undertaking a VGD, as according to the Australian Qualifications Framework Advisory Board (AQFAB), is nonetheless highly debatable, since completing a VGD alone could hardly render a candidate expert in a vocational field. Expertise is typically understood as a function of long exposure to a relevant workplace and a history of complex problem solving therein. Most of the literature on expertise reinforces the idea that:

> expertise is built upon the knowledge and skill gained through sustained practice and experience [where] … there is an interest in documenting the performance capabilities or qualities of the expert or skilled practical thinker (Tennant, 1999, 171).

Moving from text on the nature of vocational graduate programs to lecturer and student perspectives on the operationalised programs, some coherence between the two is discernable. The program developer and main lecturer in the VGC/D in Culinary Arts was always mindful that it was going to be a challenge to convince chefs in Australia that they needed further education. A graduate of culinary arts and also adult and vocational education herself, the program developer affirmed passionately that culinary students must read broadly, research diversely and have a broad general culture in order to be successful in their field. This lecturer considered that the reality of delivering the program corresponded quite closely to her expectations. The four courses so far delivered (out of a suite of eight) have been the subject of extensive student feedback and generally received a positive appraisal from students. Apart from some slight adjustment of pedagogic strategies in relation to the

sequence in which material was presented to students, and in some instances, the format, the respondent had not considered any major alterations to delivery, except in relation to potentially varying one of the major assessment items.

Another program lecturer consulted stated:

> I do think that the marketing subject was quite difficult for them as it required a certain amount of theoretical knowledge and introduction of new concepts of which [the students] had not previously been aware. As this was the first semester of their course it did take some time for them to adjust to the level of information they needed to be learning.

This lecturer affirmed that she considered the students were able to make the adaptation to a higher level of learning by the end of the two semesters but that it required a not inconsiderable level of self-management and discipline.

All of the culinary arts students surveyed expressed positive attitudes in regard to the program thus far, although some asserted that they had been somewhat confused by the intricacies of the finance unit initially. All remarked upon the passion and enthusiasm of the lecturers, stating that they found these to be highly motivating factors in relation to the program. The majority of respondents commented upon the fact that they were amazed and delighted to find a high-level program 'out there for chefs', with the program opening up a new world of options for them that they had not known existed or ever considered before. This was in marked contrast to the relatively low level courses in hospitality and cookery that have previously been available in Queensland, i.e. apprenticeship studies. One student respondent remarked that she had found that the program opened her up enormously to researching food history and the roles that food played in society, with this dimension being a major revelation for her. The candidate had particularly enjoyed researching the history of Australian food and now believed that research was the key to generating new ideas and new approaches to the presentation of food and food styling. Had she not undertaken the program, she asserted, she might never have come to this realisation. This kind of reaction was fairly typical of the responses elicited from this student cohort.

All respondents commented upon the experience of the gala dinner they presented as being very demanding in terms of time, planning, resources and personal skills, but ultimately, very rewarding. Most enjoyed the intensity of having fifteen professional chefs working in the kitchen at the same time, stating that it was a very memorable occasion. One respondent commented positively on the way her team of four managed to work very strongly as a team under pressure, which they experienced as a very affirming experience. In discussing the chosen theme for the dinner of this team – 'old skool – past meets present' - this team acclaimed the benefits that studying food history brought to them, avowing that it was very rare that one thinks to look at the past when attempting to be innovative with food, with a greater tendency being to examine the latest and greatest trends.

In general the program was declared to be:

> far more intense than I expected but definitely very manageable. The program absolutely gave me what I was looking for and I will definitely complete the next four courses.

Others affirmed that it stretched them personally, requiring significant time management, project management, self-discipline and personal initiative, but all concluded that it was a very positive experience. Respondents acknowledged different motivations for undertaking the program – the desire to be extended, the desire to advance in the workplace, a change of career direction from catering to food styling and food photography, etc. Most recognised that the benefits accruing from undertaking the program were already making a difference to their performance in the workplace, especially on the level of generating creative ideas for marketing their business and also in terms of managing staff in the kitchen, performing staff rostering, resolving staff issues and motivating staff, carrying out accounting and forecasting and so forth.

Although the objectives of the VGC in Architectural Digital Illustration differ markedly from those of the VGC/D in Culinary Arts, there was a reasonable parallelism in the kinds of data unearthed from both groups surveyed. The key lecturers in the architectural digital illustration program, as with those in the culinary arts program, stressed over-archingly time management and project management, and the candidate taking responsibility for their own outcomes, as factors promoting success in the program. Initiative and enterprise also figured highly in the same context – one lecturer citing the instance of certain candidates who succeeded in the program 'because they just ran with it'. This meant that the candidates were not overwhelmed by what they did not know but immersed themselves into the ethos of the program and got on with it, were unafraid. This approach was advanced in contrast to candidates who were bothered by their lack of absolute knowledge of relevant computer software and design concepts as tools, for example. It seemed akin to a certain kind of informed risk-taking but also at times close to 'creativity' (relevant in both of these programs) and something about which there is no real language in the discourse of the training package.

The program co-ordinator of the architectural digital program avowed that there are certain aspects of the program he would run differently the second time around, especially in relation to some sequencing of material. He would incorporate less flexibility in accommodating diverse projects for individual students. He found that some of the candidates needed large projects to be broken into smaller facets to a greater extent than anticipated, with certain lacking necessary levels of organisation and structure to operate within these parameters unaided. In a subsequent offering of the program, the co-ordinator planned to use small assignments as scaffolding for the major project of e.g. website building. In addition, he planned to incorporate the dimension of working with a real client, receiving the client brief, presenting a concept to the client and carrying out suggested modifications to designs within relevant timeframes in a more overt and formal fashion. This was the real world dimension that some of the students had not experienced, except in simulation, and which several found extremely challenging. Overall, the aim would be to orchestrate the timing of the program more tightly. The objective would be for projects to be totally self-managed by the students – for them to both execute and manage the project – but some scaffolding might be needed for certain candidates. It was also seen as optimal to introduce some element of costing into the client dimension in an attempt to augment the real world content and applicability of the program. The aim would be to promote autonomy in the candidates but some would need more support

than others in order to develop into autonomous workers, depending on their background, the lecturer affirmed.

In terms of student perspectives, some student respondents acknowledged that they experienced difficulty in managing their own time and meeting their own deadlines. (Admittedly, some of these candidates were simultaneously undertaking degrees in architecture). Although all of the candidates had necessarily undertaken previous study, some felt not entirely ready for the level of autonomy the program demanded of them. A few of the candidates had extensive work experience in computer-assisted drafting as draftspeople and project managers. These candidates identified that the VGC level was necessarily higher than the Diploma they had previously undertaken, stating that it demanded an intensive dimension of self-directed research and learning/acquiring of knowledge. The program in this regard was also declared to require far more knowledge-based problem solving than at the undergraduate level, being more demanding but simultaneously more satisfying. Like the candidates in the culinary arts programs, many candidates in this program stressed that personal research was critical. These same respondents identified that it was possible to go in one's own direction in the vocational graduate program, as opposed to working within the parameters laid down for the student at the undergraduate level.

Several of the respondents, like those from the culinary arts program, asserted that completing the program enhanced their ability to perform their work. Apart from the practical support afforded by some candidates' workplaces, further benefits derived from the possibility of being able to work on real life work projects for the first two units of the program, rather than needing to artificially develop a project. The ability to use the same imagery/designs developed in early units in a later project was declared a positive feature of the way in which the program was designed, to the extent that it allowed more intensive interrogation of early design work at subsequent stages of development. Some candidates felt comfortable 'picking up new computer programs', using an attitude of trial and error for problem solving and not being afraid to make mistakes. Others felt less so. Beyond this, personal research was overwhelmingly cited as the key to success, in terms of progressing through the program, as well as the highly supportive attitude of the lecturer who was deemed open and responsive to being contacted during class or at any time outside of class.

5. Conclusions

The findings presented above represent a very small selection of the themes yielded by the larger research project, where the research into the VGC in Applied Biotechnology is only just commencing, since the program is only now in the process of being implemented in the guise of a industry cadetship. It is avowed that there is a need for much more research and validation of these embryonic findings before definitive assertions can be made. It does appear, however, that the training package format is a major obstacle to the rapid and responsive development of such programs, for the requirements of such technical writing are such that, even in the very best of cases, it has proved impossible to develop such programs from conceptual origins to accredited course in under a year. It is notable that all lecturers and students stress knowledge (above skills) as the critical dimension of the new programs; ironically, all of the curriculum writers in the instances alluded to in this study experienced extreme frustration at needing to 'hide' the knowledge dimension of the curriculum in

apparent action, where the job tasks to be performed must read as if there is no necessity to obtain knowledge in advance of the performing of tasks. In every instance of vocational graduate program curriculum writing observed to date in this context, curriculum developers have been disposed towards (but been prevented by the constraints of the curriculum format) writing an introductory unit (module?) relating to preparatory research and the acquiring of knowledge used at this level. Although it is submitted that vocational graduate programs have the potential to make a highly valuable contribution to skilling the associate professional workforce in contemporary ways, the evidence is currently such that the constraints of the onerous curriculum development process necessarily work against this occurring in a timely and responsive fashion.

6. References

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