

## DEVELOPING PATHWAYS FROM VOCATIONAL TO HIGHER EDUCATION COURSES: CHALLENGES FACED

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*There is increasing pressure to make pathways to higher education more accessible to students from a wide range of backgrounds, including those from lower socioeconomic circumstances. Often, those students gain vocational qualifications but those qualifications do not always support them fully to articulate to higher education. This is, at least in part, due to the gap in mathematics knowledge between what is taught in the vocational qualifications and what is required for entry into the related higher education courses. This paper reports on a project that took a cross-sector approach to improving pathways from vocational to higher education that focus on mathematical skill development. The project developed pathways for four disciplines, engineering, education, health science and business. This paper examines the challenges faced when working across those sectors to develop resources and establish pathways for students to articulate from vocational qualifications into related higher education courses. Of particular interest are the outcomes for the education pathway. A preliminary evaluation of the development of the education pathway resources is presented. The study utilises an exploratory research paradigm to explore the issues of working across sectors through content analysis of reports and surveys of stakeholders in the project.*

### Introduction

The widening participation agenda in Australian higher education has resulted in the implementation of many initiatives to facilitate an increase in participation of low socio-economic status (SES) students (Bradley, 2008; Gale & Parker, 2013). This has stimulated activity in the development of transition programs from the vocational and education and training (VET) sector to the higher education sector (Dawson, Charman, Kilpatrick, 2013; Karmel, 2008; Wheelahan, 2009). These programs challenge the often held view that for many of these students attaining a VET qualification is more achievable than gaining higher education qualifications (Wheelahan, 2009). Hoelscher, Hayward, Ertl, & Dunbar-Goddet (2008) suggest that students with VET qualifications are often seen as disadvantaged. Dawson et al. also suggest that higher education staff presume VET qualified students will not perform as well as traditional students. Research studies have, however, shown that VET entry qualifications do not hamper students to complete successfully their higher education studies and VET qualified students perform equal to or better than their traditional student counterparts across a range of disciplines (e.g., Bingham & O'Hara, 2007; Langworthy, Johns, & Humphries, 2011).

The pathways from VET to higher education are many and varied. The VET sector can provide the entry requirements to higher education and therefore serve as a pathway for students who would otherwise not meet the entry requirements for their chosen degree based on their achievements in their secondary years of schooling (Stanwick, 2006; Wheelahan, 2009; O'Shea, Lysaght, & Tanner, 2012). By obtaining a VET qualification, some credit towards a higher education qualification may be awarded (Guthrie, Stanwick, & Karmel, 2011; Johnston, Phillips, Noonan, Carnegie, & Golding, 2006; Langworthy et al., 2011). Higher education institutions generally review transcripts on a student by student basis to arrange credit transfer and in the case of Engineering, Dowling (2010) points out that because there is such variability in the number of electives that a student can take to make up their qualification, the suitability of the qualification as a pathway to higher education also varies. It is likely that each higher education institutions will have its own requirements for pathways into higher education courses and the rate of transitioning from VET to higher education varies markedly across institutions (Moodie, 2012). These arrangements are not always transparent to students and can lead to

confusion for those trying to navigate this landscape (Hoelscher et al., 2008; Santos Laanan, 2007).

In the VET sector, the 2012-2015 National VET e-learning Strategy focuses on supporting learner pathways as a way to move from the VET sector to higher education (Department of Industry, Innovation, Science, Research and Tertiary Education, 2012). One option is the use of contextualised learning, which helps to motivate students in an online environment (Inayat, ul Amin, Inayat, & Salim, 2013; Misko, Choi, Hong, & Lee, 2005). This is particularly important for students from the VET sector who have traditionally learned through applied learning. Students who have articulated from the VET sector have been part of a learning culture which is applied and contextualised. It is essential that a smooth transition occurs in the learning approach of these students to ensure success in the higher education sector. To do this, specialised bridging programs which use contextualised learning and technology effectively are important for success for these students.

The aspect of connectedness between VET and higher education that is lacking is often in relation to students' mathematics knowledge (Brandell, Hemmi, Thunberg, 2008; Cuthbert & MacGillivray, 2003; Newman-Ford, Llyod, & Thomas, 2007; Rylands & Coady, 2009; Selden, 2005; Skalicky, Adam, & Brown, 2010). Having the mathematical background needed for entry into higher education courses can be especially challenging for VET students as it may be a number of years since they studied mathematics and they may not have studied any mathematics in their VET qualifications. A review of information from Australian Universities showed that the Advanced Diploma of Children Services does not include any mathematics units, yet it is one of the most common VET courses used as a pathway to Bachelor of Education (Primary and Early Childhood). The issue of insufficient mathematical knowledge is also prevalent in other disciplines, such as engineering, nursing and business (Kilpatrick et al., 2015). It is reasonable to suggest that this often leaves students with deficiencies in their mathematical knowledge when they encounter mathematics units in their higher education courses.

Crucial to the successful transition to higher education is the development of pathways that meet the needs of the students (Knox, 2005) and have a connectedness between the VET and higher education learning contexts (Abbott-Chapman, 2011). This connectedness is maintained by education providers who operate in both the higher education and VET sectors (Karmel, 2008) but often the two sectors operate in isolation and would benefit from establishing pathway agreements and partnerships to optimise students' transition, retention, and performance in the higher education (Knox, 2005). The development of cross-sector partnerships is often difficult (Brown & Shipway, 2006; Kidd, Brown, & Fitzallen, 2015) but such partnerships have the potential to play a crucial role in opening up opportunities for progressing and sustaining student learning (Allison, Gorringer, & Lacey, 2006).

Working in partnership across sectors requires partners to have an understanding of the goals, culture and language of each other's sector, and, crucially, to dedicate resources to working on their partnership (Clemans, Billett, & Seddon, 2005; Kilpatrick, Cheers, Gillies, & Taylor, 2009; Kilpatrick, Johns, Mulford, Falk, & Prescott, 2002). Clemans et al. identify five dimensions and principles of partnership work: cultural scoping work, connection building work, capacity building work, collective work, and trust building work.

Clemans and her colleagues (2005) describe the concept of partnership work as a collaborative process that identifies agreed shared goals for the partnership, and a process for monitoring and reviewing those goals. Through their analyses they have identified five principles and associated practices that lead to development sustainability of effective partnership work. They note that principles can be used to evaluate partnership work. The five *Principles of Partnership Work* are summarised below.

1. *Developing and maintaining shared purposes and goals.* This includes developing a framework for collectively realising goals, reviewing and revising goals, and renewing commitment.

2. *Developing and maintaining relations with partners.* This involves building trust and commitment, encouraging participation, and inclusive and respectful developing processes. Recognising partners' contributions, and facilitating new relationships is part of this.

3. *Developing and maintaining capacities for partnership work.* Developing the infrastructure and resources needed to achieve goals and managing the infrastructure required to support staff and partners.

4. *Developing and maintaining partnership governance and leadership.* Devising consistent, transparent and workable procedures for the partnership work and enactment of leadership. It involves developing and supporting communication between partners, and effective leadership.

5. *Developing and maintaining trust and trustworthiness.* Establishing processes that engage and inform partners, and encourage collaboration. Ensuring that different expectations and needs are recognised and addressed (Clemans et al., 2005, pp. 95-96).

In this current project, attention to the fundamental requirements of an effective partnership involved developing a shared understanding of the cultures and contexts of the VET and HE sectors. This bifurcation of Australian post-secondary education results in two sectors that differ in many ways, particularly in learning approach and student characteristics (Karmel, 2008). This raises issues as a growing number of students move between the two sectors (Karmel, 2008; Watson, 2008; Moodie, 2012). Whereas in the VET sector learning is competency based, in the HE sector it is knowledge based (Karmel, 2008). The sectors' learning and teaching approaches and cultures are linked to the desired employment outcomes for each sector. The VET sector trains students for a particular skill and employment outcome while higher education prepares students for a contemporary, changing knowledge economy and emphasises independent study (Dawson et al., 2013). Utilising VET as a pathway to higher education has recently been supported by the government (Bradley, 2008) and has generated growing activity around articulation pathways from VET and higher education institutions (Karmel, 2008; Dawson et al., 2013). The culture of the staff within both the VET and higher education sectors needs to be more aware of the differences and similarities between the learning styles, values and expectations of the other sector (Watson, 2008; Bingham & O'Hara, 2007; Laming & Kelly, 2013).

This paper draws on experiences from a project funded by the Office of Learning and Teaching designed to develop contextualised pathways from VET to higher education for students with gaps in mathematical knowledge, *Development of mathematical pathways for VET students to articulate to related higher education courses*. The project was designed to assist Australian Qualifications Framework compliance and articulation to related higher education courses, such as Engineering, Education, Business, and Health Science, as well as improving VET student readiness for higher education study. Higher education and VET partners worked together in discipline groups to identify gaps in mathematics knowledge and devise pathway solutions for their articulating students. From this the issue of developing effective partnerships came to the fore for the Education group.

We are interested in the effectiveness of the processes used in the project. The Office of Learning and Teaching, the funding body for the project, includes in its progress report template a section 'Lessons learnt', and another 'Challenges met'. The external project evaluator was also required to monitor and report on the quality of the project process, as well as the quality and utility of project outputs and outcomes. These mechanisms encouraged us to consider the process of engaging as a research team with other stakeholders as we produced the four pathway resources. This paper reports the analysis of the effectiveness of the project's partnership according to the five *Principles for Partnership Work* (Clemans et al., 2005).

## Methodology

The study utilises an exploratory research paradigm (Babbie, 2013; Denzin & Lincoln, 2005) to explore the issues and challenges of developing a cross-sectoral partnership to develop resources to support student transition from VET to higher education (Kilpatrick et al., 2015). The data are drawn from project reports and are supplemented by an open-ended question survey of key participant partners completed at the end of the project, which required them to reflect on their experiences of

working with the respective VET and higher education partners. The key participant surveys were from five higher education VET partner representatives. The survey was administered following acceptance of the final project report by the funding body. The project reports include three progress reports to the funding body, the external evaluator's report and the project's final report. The external evaluator's report included findings about the effectiveness of the project processes in addition to the evaluation of the project outputs and outcomes. Project process effectiveness findings in the evaluation report were based on two focus groups of project partners, and surveys of 19 VET and higher education partners. The data were analysed using content analysis (Miles & Huberman, 1994) and clustered according to Clemans, Billett, and Seddon's (2005) five *Principles for Partnership Work*.

## Results and Discussion

The project was tracked through a series of progress reports and scheduled team meetings to evaluate progress against milestones. A major challenge for this project identified through this process was the large project team. The team encompassed members from both VET and HE sectors, different institutions and states of Australia and four different disciplines. The benefits of this broad representation came with a need to ensure effective working processes that were inclusive and focussed on the outcomes of the project. This was reflected in the 'Challenges met' section of the progress report template in all progress reports reproduced below.

- With 15 team members as well as VET partners, keeping everyone engaged and moving forward at the same pace is a challenge. There have been instances where some partners have over-committed and are unable to meet their deadlines. It has not caused any major problems but it means that others are picking up their work. (Progress report 1).
- This project started with a large project team (14 project partners from four higher education institutes in addition to four VET partners) for the Education and Engineering disciplines. In 2014, we have added an additional 11 people to the project team (seven HE partners and four VET partners) for the Business and Health Science Pathways. Having a smaller team on the Business pathway (five team members) seems to work better and more efficiently. Because there are fewer team members, everyone is aware that they need to do their share of the work. The Business team is extremely efficient and committed to the project (Progress report 2).
- Having a large project team continues to be a challenge; 21 higher education partners and 8 VET partners in four disciplines. Keeping the teams on task can be difficult as many are over-committed however, clear communication and a well-planned timeline have allowed for deadlines to be met. The Health Science team has had some members who want to be involved but struggle to commit the time required to the project. These team members are contributing but the project manager takes a much larger role in directing what is needed of them. To date, this has not caused any major problem and overall the Health Science team is committed but it has been a challenge to coordinate this group (Progress report 3).

The final project report reflected on the experience of working with such a large and diverse team on a project of less than three years duration and concluded:

Having a large project team has had both its advantages and disadvantages. The initial project team began with 14 HE partners and 4 VET partners and, with the addition of the Health Science Pathway and Business Pathway, grew to 30 project partners from both VET and HE... Having a large project team also has its advantages with a diverse group of individuals bringing a range of experience and ideas. (Project report, p. 10-11)

The remainder of this section considers the responses to these challenges according to the five *Principles for Partnership Work* (Clemans et al., 2005).

## Developing and maintaining shared purposes and goals

Despite the challenges of the large team and cross-sectoral differences in approaches to learning (Knox, 2005; Brown & Shipway, 2006; Dawson et al., 2013; Kidd et al., 2015), project partners indicated that the project was progressing well and they were satisfied with the processes occurring.

Having a detailed project plan from the start has kept this project moving forward and to task. (Progress report 1)

The evaluation report confirms that the original plans in all four disciplines were sound, and appropriate, with all four carried out as originally set out. An Education pathway partner stated, “The Education pathway was developed as intended. No changes were made to the original plans.”

The project started with a two day workshop for the project partners, and including the education and engineering partners. The workshop program (included in project reports) shows time was spent confirming the goals of the project; developing a framework for the governance of each pathway working party and developing the pathways; establishing communication protocols; and early consideration of how the pathways would be evaluated, that is a framework for collectively realising goals, reviewing and revising goals.

I think that’s it was really great having those days working together, I think that if I didn’t have that it could have been a problem. I think that having those few days working with people from the HE sector actually clarified and gave me the knowledge that I needed for that particular project. Knowing what their requirements and experiences with their students and their knowledge of students’ experiences in terms of business maths. (VET partner)

This approach was contributed to the success of the project, with a partner from the initial pathways noting that a factor that helped the success of the project was “shared commitment by the stakeholders to enable VET students to transition to HE.” (Evaluation report)

The final report noted that another lesson learnt is that it would be beneficial to have had all the project partners involved from the start. By adding the team members after the project has been ongoing for a year it has been difficult to get some of the new team members to fully engage with the project. If they had been involved from the start of the grant, it is possible that they would have had more commitment to the project:

The additional partners who were part of the Health Science Pathway and Business Pathway varied in their commitment to the project. This is unsurprising because they were not part of the original proposal and it is suggested as a learning from this project that partners are “on board” from the outset of the project to maximise their ownership of the project. (Project final report, p.10)

Developing better understanding of each other’s sectors (VET and HE) among the project participants may have assisted in building and maintaining shared purpose and goals, and more could have been done in this regard especially with the later Business and Health Pathways, as these comments at the end of the project from the Evaluation report and the survey suggest:

I had (still have) little knowledge of this [the VET] sector. (HE partner)

Projects like this are important, so that there is some understanding between the sectors. Particularly from the students point of view so that each sector has more knowledge of the other it might help to enhance the students’ experience. (VET partner)

Before setting up a project like this in the future, there might be more consultation with the VET sector before it starts. More enquiry before the project is bedded down. I wonder how much that there was with this project, there might have been, I don’t know. (VET partner)

Many of the unexpected benefits reported by participants could be traced to building a shared understanding among the partners, even within a single institution as illustrated by HE and VET participants quoted in the Evaluation report:

Working across UTAS schools, faculties and campuses has been a great change.

Strengthening links with other organisations.

Links with colleagues in other institutions and across disciplines.

Agreement with TasTAFE.

Increased knowledge of partners both VET and HE.

## Developing and maintaining relations with partners

Most partners willingly fulfilled their commitment to the project:

I have a large workload, but I didn't find the amount of time I spent on it too demanding.  
(VET partner, from survey)

One challenge related to lack of continuity of staff, which was particularly prevalent among the VET partners (final report).

Unfortunately the TAFE staff member who was supporting our team was no longer able to participate and the replacement member didn't really become part of the team. This may have been a result of them joining the project part way through and thus not having a full understanding of the project. (HE partner)

A committed senior VET partner who had been involved from the start of the project and who '*really just connected you with the right people*' (survey) did assist in overcoming the continuity issue.

The project high level leadership structure, sound plan, established communication protocols and the project manager assisted in bringing new partners on board and allowing them to learn from work that had occurred in the first two Pathways:

We were fortunate in the sense that our pathway started half way through the project so we were able to benefit from the experiences of the other two pathways. (HE partner)

There were some unexpected benefits from developing and maintaining good relationships at the whole of project level, especially relationships with partners in other Pathway teams:

Working across UTAS schools, faculties and campuses has increased awareness between partners and is an unintended outcome and benefit. In particular, raising the profile of maths in VET and the fact that you can develop maths skills later in your education.  
(Project report 3)

## Developing and maintaining capacities for partnership work

This project has reaffirmed that having a project manager with dedicated time who can drive the project and keep to the project to the timeline is crucial to the success of the project (Progress reports 1, 2 & 3; Evaluation report, Final report).

Progress reports 2 and 3 noted that strong and disciplined project management assisted in overcoming the challenge of the large team and complexity of the four, separately developed Pathways. The Project Manager ensured resources were available when needed by the Pathway teams:

Project officer and employed writers are a major help. (Evaluation report)

Although time is always a constraint, the project was made manageable as a result of having a cooperative team and a great project manager [NAME], who was always keen to provide ideas and support and assist to keep us on track. (HE partner, from Survey)

The most efficient team was the smallest, the Business team. The dedicated resource of the project manager assisted in keeping people on track, and in intervening and picking up coordination and communication tasks where needed. As well, hiring module writers for the online materials appears to have been welcomed and appreciated (Project report 3).

Employment of people to do the writing of module material under supervision of team members has been essential (HE participant quoted in Evaluation report)

## Developing and maintaining partnership governance and leadership

Ensuring that communication between the project partners is direct, clear and meaningful enabled the partners to understand what was needed of them and when (Progress reports 1, 2 and 3).

Developing separate, discipline specific pathways was a strength, as expected; this was the leading justification for the project (project application). The first two disciplines, Education and Engineering, took very different approaches not only to the nature of the Pathway developed, but also to working together and 'it has been a very interesting process to be involved in' (Progress report 1).

Project governance devolved the development of the four pathways to a discipline team, each lead by one of the HE partners. This devolved approach left the teams free to develop solutions that suited their discipline, while being part of the larger project that shared the models and examples between the four discipline teams:

The project was very well organised, with an excellent project manager. We were also fortunate that we had a good team and were able to employ an experienced course designer to bring the materials together. (HE partner)

However, discipline specific pathways demanded buy in from VET partners which was hampered by lack of continuity of VET partner staff. The timing of the project coincided with major funding changes to TAFEs in several states (Noonan, Burke, Wade, & Pilcher, 2014).

Again, a factor that assisted the success of the project in maintaining partnership governance and leadership was 'consistent and reliable project management' (partner, Evaluation report), although another partner noted in the same report that 'lack of relevant expertise and actual leadership of the Project Leader' hindered the success of the project.

## Developing and maintaining trust and trustworthiness

Cultural differences and lack of trust or respect between the sectors was not an issue, suggesting issues hindering cross-sectoral collaboration identified by Dawson and his colleagues (2013), Watson (2008), Bingham and O'Hara (2007) and Laming and Kelly (2013) were overcome through the project processes as a whole. When asked if there were any cultural differences between the VET and HE sectors, two HE partners commented: "I did not notice any" and "quite possibly, but they did not appear to provide and problems for the project." Another VET partner said:

There was a respectful relationship. I didn't feel that I was on the outer because I was representing one of the VET sector partners. (survey)

Some of the partners were more committed than others, and able to prioritise time for this project. 'There may be some issues in perceptions of who is undertaking work and the relative input of some members compared to others' (Project report 3).

Not everyone is putting in the effort (Evaluation report)

## Factors contributing to or detracting from the project processes

Analysis of the comments of participants and factors cited as contributing to or detracting from the project processes in reports and surveys from the *Development of mathematical pathways for VET students to articulate to related higher education courses* project suggest that there were several key

factors that reoccurred across the principles.

Having a dedicated project manager who is seen as credible, trusted and respected by the partners contributed to all the principles, particularly Developing and maintaining relations with partners, Developing and maintaining capacities for partnership work, Developing and maintaining partnership governance and leadership and Developing and maintaining partnership governance and leadership.

Having a sound project plan that is understood and accepted by all partners also contributed to all the principles, particularly Developing and maintaining shared purposes and goals, Developing and maintaining relations with partners, and Developing and maintaining partnership governance and leadership.

Having a sound governance structure that responds both to the overall project higher level outcomes, but also has flexibility to respond to the different contexts (in this case the four discipline Pathways) contributed particularly to the principles Developing and maintaining partnership governance, Developing and maintaining relations with partners and leadership and Developing and maintaining trust and trustworthiness.

Having dedicated project resources (people paid to develop the resources as well as the project manager) contributed particularly to the principles Developing and maintaining capacities for partnership work, and Developing and maintaining relations with partners.

Regular communication, that includes some face to face components contributed particularly to the principles Developing and maintaining relations with partners and Developing and maintaining trust and trustworthiness.

Finally, developing an expectation that partners may be from different sectors, but that each sector had a valuable contribution to make to the project contributed particularly to the principles Developing and maintaining partnership governance and leadership and Developing and maintaining trust and trustworthiness.

## Conclusion

Clemans, Billett and Seddon's (2005) five *Principles for Partnership Work* are a useful framework for both guiding and evaluating partnership work. Attention to the principles in project design, initial project set up and relationship building, and ongoing attention to the principles as the project progress will improve the efficacy and effectiveness and of partnership work, and so can be expected to improve the project outputs and outcomes.

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